



EP001 / #136

E-Poster Topic: AS01 Neonatal & Prematurity

OROPHARYNGEAL COLOSTRUM REDUCES THE PRO-INFLAMMATORY SIGNALING IN PRETERM NEONATES

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Background and Aims:

Inflammation is implicated in a high proportion of preterm births, and is associated with fetal inflammatory response syndrome. Colostrum is the best first immune stimulator in infants, featuring the perfect nutrition, because it contains many types of protective agents. The aim of this study is to assess the effects of oropharyngeal mother's milk administration in the inflammatory signaling of extremely premature infants.

Methods:

Neonates (n = 100) (<32 week's gestation and/or <1500 g) were divided into two groups: colostrum group (n = 48), receiving 0.2 mL of colostrum every 4 h for the first 15 days of life, and a control group (n = 52), not receiving colostrum. Serum concentrations of interleukin (IL) IL-6, tumor necrosis factor alpha (TNF- α) were assessed at 15 days of postnatal life.

Results:

IL-6 and TNF- α were lower after 15 days of postnatal life in the colostrum group compared to the control group (p < 0.05).

Conclusions:

The administration of oropharyngeal mother's milk in the first month of life contributes to decreasing the pro-inflammatory state of the preterm neonate, indicating a beneficial influence on the inflammatory response.

EP002 / #149

E-Poster Topic: *AS01 Neonatal & Prematurity*

OROPHARYNGEAL COLOSTRUM IMPROVES THE ANTI-INFLAMMATORY SIGNALING AND GASTROINTESTINAL TRACT DEVELOPMENT IN PRETERM NEONATES

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Background and Aims:

The inability to obtain enteral nutrition in the first days of life leads to villous atrophy and delayed nutrient absorption, increasing the risk of inflammation and hospital-related infections. Colostrum contains many types of protective agents which could help to develop the immature gastrointestinal tract. The aim of this study is to assess the effects of oropharyngeal mother's milk administration in the anti-inflammatory profile and the maturation of the gastrointestinal system of extremely premature infants.

Methods:

Neonates (n = 100) (<32 week's gestation and/or <1500 g) were divided into two groups: colostrum group (n = 48), receiving 0.2 mL of colostrum every 4 h for the first 15 days of life, and a control group (n = 52), not receiving colostrum. Serum concentrations of IL-1ra, and the number of days to achieve full enteral nutrition were assessed at 15 days of postnatal life.

Results:

IL-1ra levels were lower in the control group compared to the colostrum group (p < 0.05). Babies receiving colostrum achieved full enteral feeding sooner than the control group (p < 0.05).

Conclusions:

The administration of oropharyngeal colostrum increased the anti-inflammatory state of the preterm neonate. Moreover, preterm infants receiving colostrum achieved complete enteral nutrition sooner, representing a metabolic advantage for the underdeveloped gastrointestinal system.

EP003 / #150

E-Poster Topic: *AS01 Neonatal & Prematurity*

PLASMA LACTOFERRIN AND RESISTIN LEVELS ENHANCED BY OROPHARYNGEAL COLOSTRUM ADMINISTRATION IN PRETERM NEONATES

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Background and Aims:

Little information is available on lactoferrin and resistin levels in neonates and especially in preterm neonates. Lactoferrin and resistin are considered a cell-secreted mediator that links the innate and adaptive immune responses. Our aim was to evaluate the effect of oropharyngeal colostrum on the serum levels of lactoferrin and resistin in preterm neonates.

Methods:

Neonates (n = 100) (<32 week's gestation and/or <1500 g) were divided into two groups: mother's milk group colostrum group (n = 48), receiving 0.2 mL of oropharyngeal mother's milk colostrum every 4 h for the first 15 days of life, and a control group (n = 52), not receiving oropharyngeal mother's milk colostrum. Serum concentrations of IL-1ra, and the number of days to achieve full enteral nutrition were assessed at 15 days of postnatal life.

Results:

We recorded higher lactoferrin serum levels in preterm neonates who received colostrum at 15 days of life. The group receiving oropharyngeal colostrum displayed markedly elevated levels of serum lactoferrin and resistin compared with the controls at day 15 of the study.

Conclusions:

This data suggests, that oropharyngeal colostrum would increase lactoferrin and resistin absorption and would modulate the immune system through local interaction with the lymphoid tissue associated with mucous membranes (where the absorption takes place) and also modulates energy homeostasis and carbohydrate/lipid metabolism.

EP004 / #21

E-Poster Topic: *AS01 Neonatal & Prematurity*

FEEDING BEHAVIOURS, POST-NATAL GROWTH AND NEURO-COGNITIVE OUTCOMES OF PRETERM ASIAN INFANTS

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Background and Aims:

Infants born preterm/ very low birth weight (VLBW) are^{[[1]]} at higher risk of feeding difficulties. We aim to describe the feeding behaviours using the Behavioural Paediatrics Feeding Assessment (BPFA) and discuss the relationship between feeding behaviours and growth and neurocognitive outcomes.

Methods:

Cohort study involving children 12-84 months old, born preterm 32 weeks and below/ VLBW. Information on feeding behaviour, neonatal events and growth were obtained via questionnaire and hospital records. Developmental assessment was performed using the Mullen/ Bayley/ Wechsler scales.

Results:

One hundred children; 52% male, median age 34 months, median birth weight 1130.5g (500.8) (z score 0.035), median gestation 29.1 weeks. Median weight z score on discharge from NICU and at 12 months corrected age were -2.2 and -0.34, respectively.

Rates of feeding problem: 42% BPFA, 25% clinician diagnosed. Median cognitive score was 93; Rate of severe intraventricular haemorrhage was low: 2 grade 3, 1 grade 4.

Lower weight (z score <-1) on discharge from NICU was predictive of feeding problems (BPFA); 45.6% vs 10%, $p = 0.031$. Lower weight at 12 months corrected age (z score <-1.5) was predictive of clinician diagnosed feeding problems: 39.3% vs 13.1%, $p = 0.005$; after adjusting for birth weight, gestation, gender, ethnicity and birth order: $b = 0.17$, $p = 0.01$. They had smaller head circumference.

Feeding problem (BPFA) was associated with poorer cognitive outcome ($b = -13.11$, $p = 0.004$).

Conclusions:

Lower weight at 12 months corrected age was associated with feeding problems, and in turn, poorer cognitive outcome.

EP005 / #213

E-Poster Topic: *AS01 Neonatal & Prematurity*

THE CORRELATION BETWEEN NEURODEVELOPMENT OUTCOMES AND THE TYPE OF FEEDING IN THE LATE PRETERM NEWBORNS (LPIs) IN CRIMEA.

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Background and Aims:

Background. Late preterm Infants (LPIs 34 - 36weeks GA) account for approximately 84% of preterm births. There is the lack of information about LPIs' neurodevelopment outcomes and the types of feeding.

The aim of our study was to evaluate the correlation between the neurodevelopment outcomes and the types of feeding in LPIs.

Methods:

Materials and methods. This study includes 110 LPIs (born between 34 to 36 weeks of gestation), they divided into 2 groups (gp). 60 babies from 1 gp. have breastfeeding during 12 months, 50 babies from 2 gp. have formula feeding. Follow-up was performed at 3 years (36 months corrected gestational age). The participants neurological evaluation was performed according to the GMFCS (Global Motor Function Classification System) and the National Language Test. Spearman's rank correlation coefficient was used for correlations.

Results:

Results

Mean gestation age at birth of the study population was $35\pm 0.8w$, with a mean weight of 2479 ± 301 . 34.5% were born at 34w, 29.2% at 35w and 36.3% at 36w. 56% were male. Their mean Apgar score on first minute was 8.5 ± 0.9 ; and at 5 minutes 9.4 ± 0.9 . At the age of 3 years LPIs from 1 group had 7% developmental delay, 9% had speech delay, 3% low level of visual impairment. LPIs from 2 group: 19% had developmental delay, 15% had Cerebral Palsy (defined as GMFCS=2) and 11% had hearing impairment not requiring hearing aids.

Conclusions:

Conclusion

According to these findings LPIs require long term follow-up and perhaps may benefit breastfeeding than formula.

EP006 / #259

E-Poster Topic: *AS01 Neonatal & Prematurity*

THE NEURODEVELOPMENT OUTCOMES AND THE FORMULA FEEDING IN THE LATE PRETERM NEWBORNS IN CRIMEA

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Background and Aims:

Background. Many neuropsychological and behavior problems have been reported in late preterm Infants (LPIs 34 - 36weeks GA), however the possible risk factors create a lot of dissuasion issues.

The aim of our study was to evaluate the neurodevelopment outcomes on the formula feeding in LPIs.

Methods:

Materials and methods. This study includes healthy 80 LPIs, which was on exclusively formula feeding during 12 months. Follow-up was performed at 3 years (36 months corrected gestational age). The participants' neurological evaluation was performed according to the GMFCS and the National Language Test.

Results:

Results

Mean gestation age at birth of the study population was $34,9 \pm 0.8$ weeks, with a mean birth weight of 2195 ± 301 . The boys and girls in the study were divided equally by number. 34.5% were born at 34w, 29.2% at 35w and 36.3% at 36w. 56% were male. Their mean Apgar score on first minute was 8.5 ± 0.9 ; and at 5 minutes 9.4 ± 0.9 . At the age of 3 years LPIs had 19% had developmental delay, 15% had Cerebral Palsy (defined as GMFCS=2) and 11% had hearing impairment not requiring hearing aids and 10% had obesity.

Conclusions:

Conclusion

According to these findings LPIs require long term follow-up and possibly formula feeding influenced on neurodevelopment level unsatisfactory.

EP007 / #260

E-Poster Topic: *AS01 Neonatal & Prematurity*

THE NEURODEVELOPMENT OUTCOMES AND THE BREASTFEEDING IN THE LATE PRETERM NEWBORNS IN CRIMEA

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Background and Aims:

Background. Late preterm Infants (LPIs 34 - 36weeks GA) account for approximately 84% of preterm babies. There is the lack of information about LPIs' neurodevelopment outcomes according to the types of feeding.

The aim of our study was to evaluate the correlation between the neurodevelopment outcomes and the breastfeeding in LPIs.

Methods:

Materials and methods. This study includes 114 LPIs without health problems, which have breastfeeding during 12 months. Follow-up was performed at 3 years (36 months corrected gestational age). The participants' neurological evaluation was performed according to the GMFCS and the National Language Test.

Results:

Results

Mean gestation age at birth of the study population was $35\pm 0,8$ week, with a mean birth weight of 2426 ± 301 , female – 68 (59,6%), male – 46 (40,4%). 36 (31,6%) were born at 34 week, 35 (30,7%) at 35 week and 43 (37,7%) at 36 week. Their mean Apgar score on first minute was $8,5 \pm 0,9$; and at 5 minutes - $9,4\pm 0,9$. 92 (80,7%) LPIs had normal neurodevelopment level at 3 years. Moreover, 8 (7%) LPIs had the GMFCS level 1, 10 (8,7%) children had speech delay, 4 (3%) babies had low level of visual impairment at 3 years old.

Conclusions:

Conclusion

According to these findings LPIs require long term follow-up and perhaps may benefit breastfeeding because the number of children without health problems prevails in research group.

EP008 / #291

E-Poster Topic: *AS01 Neonatal & Prematurity*

EFFECT OF HYPERGLYCAEMIC INTRAUTERINE ENVIRONMENT ON BRAIN NEURONAL MORPHOLOGY

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Background and Aims:

We have reported several effects of intrauterine hyperglycaemia on foetal development thus far. It was observed that hyperglycaemia promoted excessive glycation in brain neurons of offspring born from diabetic mother rats. Therefore, our study aimed to elucidate the molecular mechanisms regulating this effect using a neuronal model that mimicked the hyperglycaemic intrauterine environment.

Methods:

PC12 cells were cultured in RPMI medium supplemented with 10 mM glucose (control medium) or 25 mM glucose (high-glucose medium) for 7 days to investigate the effects of high-glucose medium. The effects of high-glucose levels were investigated by analysing glycation, insulin signalling, and apoptosis using western blotting (p-Akt, Akt, advanced glycation end-products; AGEs, cleaved-caspase3 and β -actin) and real-time PCR (Bcl-2, Bax, and Ywhaz).

Results:

AGEs formed in PC12 cells cultured in high glucose medium were higher and Akt phosphorylation was lower than their levels in cells cultured in control medium. Furthermore, cleaved caspase was significantly elevated in cells on high glucose medium. Furthermore, the high-glucose level induced apoptosis in PC12 cells.

Conclusions:

It was found that high-glucose level promoted excessive glycation of proteins in PC12 cells and that the AGEs formed from proteins inhibited nutritional signal transduction and induced apoptosis. The accumulation of AGEs in the foetal brain in a hyperglycaemic intrauterine environment may lead to neuronal apoptosis, thereby increasing the risk of neuropathy.

EP009 / #321

E-Poster Topic: *AS01 Neonatal & Prematurity*

BIRTH OUTCOMES OF NEONATES BORN TO MOTHERS WHO RECEIVED ANTENATAL CARE AT A REGIONAL HOSPITAL IN URBAN SOUTH AFRICA

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Background and Aims:

Adverse birth outcomes hold short- and long-term consequences for both mother and infant. The aim of this study was to determine birth outcomes of neonates born to mothers who received antenatal care at a regional public hospital in Bloemfontein, South Africa.

Methods:

A cross-sectional observational study, embedded in a larger cohort study was conducted. Birth information was obtained for 347 neonates from 682 conveniently sampled pregnant women in the cohort study, who were requested to return with their baby's Road to Health Booklet after delivery. Data regarding birth outcomes (gestational age, method of delivery, human immunodeficiency virus (HIV) exposure and weight, length and head circumference at birth) were recorded from the booklet.

Results:

Median gestational age was 39.0 weeks (interquartile range 37.0–39.0 weeks) and majority (61.6%) were born by caesarean section. Almost one in ten (9.2%) neonates were twins, and 1.5% were born with a disability. Low birth weight was evident in 14.4%, while 4.4% were large-for-gestational age. Just over a third (33.6%) were HIV exposed. Underweight, stunting and wasting were observed in 12.6%, 18.9% as 14.5% respectively. The same percentage (2.7%) of neonates presented with micro- and macrocephaly at birth.

Conclusions:

Caesarean section, twin pregnancies and congenital disabilities were more prevalent, while stunting was less prevalent than reported in other studies. Prevalence of prematurity, HIV exposure, low birth weight and wasting was similar to findings of other studies. Screening of pregnant women should be done to identify those at risk of adverse birth outcomes.

EP010 / #332

E-Poster Topic: AS01 Neonatal & Prematurity

THE PERFORMANCE OF THE PRETERM INFANT IN THE TRANSITION FROM TUBE TO ORAL FEEDING

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Background and Aims:

After reaching respiratory independence, feeding is one of the greatest challenges for the preterm infant (PI).

(Objectives) To analyze the feeding performance of PI, during the transition from tube to oral feeding.

Methods:

(Methods) Longitudinal study. Sample 19 PI. Data treatment: Descriptive statistics.

Results:

(Results) The PI started oral feeding at a gestational age ranging between 33weeks to 35weeks and weighing between 1460g and 3120g. On average, they were hospitalized for 17.9 days and took 9 days to reach feeding autonomy.

We analyzed the behavior of the PN in 457 meals (spontaneous-208, tube-103, tube and spontaneous-146), 339 with a nurse, 92 with parents and 26 with a nurse and parents.

Behavior of the PI	Before feeding	During feeding
Heart rate (b/m)	140-163	142- 171
Physiological stability	Respiratory rate (b/m)	36-58
	Oxygen saturation (%)	42-67
	No signs of stress	95,3%-99,4%
Readiness signs	Reflexes coordination	92% (n=424)
	Pink skin color	82,9% (n=380)
		80% (n=367)
	96,5% (n=442)	70,7% (n= 324)

Adequate muscle tone	90,1% (n=413)	60,4% (n=277)
Feeding involvement	77,0% (n=353)	41,9% (n=192)

Conclusions:

(Conclusion) Although the PI showed physiological stability and signs of readiness before feeding, their performance deteriorated during the meals. It is important that professionals recognize the signs of instability and disorganization, and have clear guidelines for making appropriate decisions to the development stages of the PI. Nurses should try and involve parents with the baby feeding, preparing them, to identify signs of readiness and stress during the meal.

EP011 / #334

E-Poster Topic: *AS01 Neonatal & Prematurity*

THE EXPERIENCES OF PARENTS OF PRETERM INFANTS IN FEEDING DURING HOSPITALIZATION AND AFTER DISCHARGE

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Background and Aims:

The knowledge of the difficulties in feeding premature babies becomes the basis for sustained decisions, in food support, until they acquired competent eating skills.

(Objectives) Understanding the opinion of parents with preterm infants (PI), regarding the guidelines related to children feeding, during hospitalization and the difficulties felt in feeding their child, after discharge from the Neonatal Unit.

Methods:

(Methods) Descriptive study of quantitative nature. Data collection through telephonic interviews with 14 mothers of PI, in the period between one to six months, after discharge. Descriptive statistical data treatment.

Results:

(Results) Mothers aged between 42 and 30 years old ($M = 35.1$), 57% had a college degree and only one was the mother of another premature baby. All had the opportunity to feed their children during hospitalization, four only breastfed, seven breastfed and bottle-feed and three only bottle-feed. All reported having received guidance from nurses on attitudes to have during feeding their children in hospitalization and after discharge, considering them very useful for interpreting the baby's behavior and integrating them during meal, contributing to making a very positive experience. Two mothers reported having called the neonatal unit because they needed assistance during the first weeks after being discharged, because the babies were regurgitating.

Conclusions:

(Conclusion) The involvement and support of parents, in the transition from tube to oral feeding, starts at hospitalization, however it does continue after discharge, with clarification of doubts and difficulties that arise during such period.

EP012 / #341

E-Poster Topic: *AS01 Neonatal & Prematurity*

SUCKING SKILLS PATTERNS IN INFANTS WITH TRISOMY 21 ADMITTED TO THE NEONATAL INTENSIVE CARE UNIT

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Background and Aims:

Background and Aims: Feeding difficulties, inadequate growth, and inappropriate nutrition are common problems among children with Down's syndrome. The Neonatal Oral-Motor Assessment Scale (NOMAS) is an observational checklist used to assess the non-nutritive and nutritive sucking skills of infants. Our aim is to describe the sucking skills pattern in infants with Trisomy 21 in the Neonatal Intensive Care Unit (NICU).

Methods:

Methods: We reviewed medical records of infants with Trisomy 21 admitted to the University Pediatric Hospital NICU in San Juan, Puerto Rico from 2012 to 2019 evaluated using NOMAS describing sucking skills pattern as normal, disorganized, or dysfunctional.

Results:

Results: The study included 17 infants (65% females, 35% males). Mean gestational age was 37 weeks (34-40) and mean birth weight 2935 grams (2500-4965). Congenital heart disease was present in 29%. NOMAS performed at a median of 2 weeks of age (0-15). Low muscle tone was identified in 69% and flaccid tongue in 55%. Sucking pattern was 59% disorganized, 29% dysfunctional and 12% normal.

Conclusions:

Conclusions: This group of infants with Trisomy 21 showed concerning sucking patterns affecting the feeding and swallowing process. NOMAS is a good assessment tool to describe infant's sucking patterns, however a complete evaluation of feeding and swallowing is necessary for the diagnosis and monitoring of swallowing dysfunction which can affect the caloric intake needed to achieve infant's growth and development. Further studies on feeding and swallowing of infants with Trisomy 21 are needed to identify the tools necessary for early identification and intervention to avoid nutritional derangements.

EP013 / #113

E-Poster Topic: *AS02 Infancy*

EVALUATION OF FOOD CONSUMPTION AND NUTRIENT INTAKE OF CHILDREN AND ADOLESCENTS WITH DOWN SYNDROME: CASE-CONTROL STUDY

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Background and Aims:

Down syndrome (DS) represents the genetic anomaly with the highest prevalence in pediatrics. A varied and balanced diet is essential for the growth and maintenance of health and can bring important results for individuals with DS. Vitamin and mineral deficiency in people with DS has been verified. This study aims to evaluate the food composition of children and adolescents with DS.

Methods:

Nutritional status and food intake of children and adolescents with DS were evaluated through the 24-hour recall and the food frequency questionnaire. This group was paired with a control group (CG), without any syndrome, by age and sex. The study was conducted in Botucatu Clinics Hospital, 2019-20, 27 individuals included in each group. Data collection included chewing, swallowing, allergies and food preferences. The specific curves for DS were used (Control Disease Center).

Results:

The average time of exclusive breastfeeding (BF) and the total time of BF fell short in both groups. Thyroid dysfunctions were more common in DS ($p = 0.01$). In DS the introduction later complementary feeding, than to the Control, significant to the introduction of porridge ($p = 0.01$) and solid food ($p = 0.01$). The prevalence of supplementation with zinc sulfate was high in DS ($p < 0.001$). The consumption of ultra-processed products was also considerable, with excessive calorie intake and insufficient vitamin A, C and B9 consumption, in both groups.

Conclusions:

We concluded that the SD children had greater thyroid dysfunction and also delayed the introduction of complementary foods, requiring a routine form of micronutrient supplementation of zinc.

EP014 / #118

E-Poster Topic: *AS02 Infancy*

EFFECT OF AN AYURVEDIC(INDIAN SYSTEM OF MEDICINE) FOOD FORMULATION IN THE GROWTH AND DEVELOPMENT OF CHILDREN DURING COMPLEMENTARY FEEDING

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Background and Aims:

Undernutrition and problems associated with complementary feeding are of great concern in the field of paediatrics. The trial was proposed to study the effect of an Ayurvedic food formulation - Priyalamajjadi yoga during complementary feeding by using specific parameters for growth and development.

Methods:

The study was conducted at the Immunization unit, Government Ayurveda College Hospital for Women and Children, Poojappura, Thiruvananthapuram, Kerala, India. Children between the age of four to 24 months and started complementary feeding were included in the study. Total 55 children of the criteria were selected and assigned to three groups as per the stage of complementary feeding and rate of growth for the age. Each group is again divided into one study and control clusters. The study cluster in each group received the food formulation Priyalamajjadi yoga (combination of Buchanania lanzan seeds, Glycyrrhiza glabra root, honey, puffed rice, sugar) in definite dose along with proper dietary advice suitable for the age to follow. The control clusters received dietary advice alone. The responses of both clusters in each group were obtained and analyzed statistically.

Results:

Length gain in the study cluster showed a statistically significant difference with P value 0.016 over the comparison. The gain in weight ($P < 0.001$), head circumference ($P 0.025$), chest circumference ($P 0.030$) as well as mid-upper arm circumference (0.015) showed statistical significance in the comparison.

Conclusions:

Priyalamajjadi yoga is effective for the proper growth and development of children during complementary feeding in the first year of life and in reducing associated morbidities.

EP015 / #121

E-Poster Topic: *AS02 Infancy*

MATERNAL FOOD CONSUMPTION, BREASTMILK RETINOL CONCENTRATIONS AND INFANT GROWTH: A CROSS-SECTIONAL STUDY IN URBAN CHINA

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Background and Aims:

To examine the associations between maternal food consumption, breastmilk retinol concentrations, and infant growth in urban China.

Methods:

A total of 326 mother-infant dyads on postpartum days 30–90 were included, and all infants were exclusively breastfed. Maternal food consumption in the past month was assessed via a semi-quantitative food frequency questionnaire. The weight and height of mothers were measured to calculate body mass index. Weight, length, and head circumference of infants were measured to calculate the length for age Z-score (LAZ), weight for age Z-score (WAZ), weight for length Z-score (WLZ), and head circumference for age Z-score (HCZ) based on the WHO standards. Breastmilk retinol concentrations were assessed with high-performance liquid chromatography.

Results:

The median (25th, 75th) retinol concentration was 1.67 (1.13, 2.15) $\mu\text{mol/L}$, and it did not change significantly across the postpartum days (Spearman's correlation, r : -0.052, $P=0.353$). Obese mothers, mothers living in the third-tier or fourth-tier cities, and living in the northern regions had lower breastmilk retinol levels (all $P<0.05$). After adjusting for confounding factors, multiple linear regression showed that egg consumption was positively associated with higher breastmilk retinol (β : 0.806, 95%CI: 0.049, 1.564, $P=0.037$). However, there were no significant associations between breastmilk retinol and LAZ (β : -0.054, 95%CI: -0.207, 0.099, $P=0.485$), WAZ (β : 0.034, 95%CI: -0.109, 0.177, $P=0.643$), WLZ (β : 0.124, 95%CI: -0.037, 0.286, $P=0.132$), and HCZ (β : 0.107, 95%CI: -0.124, 0.338, $P=0.363$).

Conclusions:

This study provided information on breastmilk retinol among urban Chinese women. Egg consumption was positively associated with higher breastmilk retinol.

EP016 / #133

E-Poster Topic: *AS02 Infancy*

MEN AND WOMEN CAREGIVERS' PSYCHOLOGICAL VARIABLES USING FOOD TO SOOTHE CHILDREN

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Background and Aims:

Caregivers feeding strategies and practices used early in life influence lifelong health status. To date, parenting research has been mainly focused on women. However, including men in this research could be interesting since co-parenting is increasing in the current society. This study aims to analyze the differences between parents' genders regarding the factors that predispose them to use food to soothe toddlers and the kind of food mainly used.

Methods:

A descriptive study including 1721 parents (962 women and 759 men) from Spain was carried out. The sample completed a self-fulfilling web-based survey with questions related to socio-demographic, feeding practices and styles, and psychological variables.

Results:

Results show that the use of food to soothe children is more present in women with the highest levels of insomnia, fatigue, and stress, whereas in fathers, the more influential variables are active employment situation as well as the highest levels of responsiveness and fatigue. Furthermore, milk, bread, and yoghurt are the most common food used to soothe, and fathers tend to use unhealthy food more frequently than mothers.

Conclusions:

Mothers are the main responsible person for children fed, but also they tend to use healthier food than fathers. The feeding practices used on children seem to be related to different parents' psychological variables overall. More research about parents' feeding strategies, including both genders, is needed.

EP017 / #134

E-Poster Topic: *AS02 Infancy*

IRON STATUS AND ITS DETERMINANTS IN HEALTHY NORTHERN EUROPEAN INFANTS AND TODDLERS

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Background and Aims:

Iron deficiency (ID) is a global health concern. During early childhood the risk of ID is especially high due to rapid growth. We aimed to explore prevalence of ID and iron deficiency anemia (IDA), and to determine ID- and IDA-related factors in infants and toddlers.

Methods:

We performed a secondary analysis of Vitamin D intervention in infants (VIDI) study. ID was defined as serum ferritin <10 µg/L and IDA as serum ferritin <10 µg/L and Hb <112 g/L. We excluded children with inflammation (high-sensitivity CRP (hs-CRP) >1 µg/mL). Altogether 766 children provided data (N=498 infants at 12 months, N=508 toddlers at 24 months).

Results:

ID prevalence was 14% in infants and 20% in toddlers. IDA prevalence was 3% at both time points. In 30% of infants, iron intake remained below average requirement of iron (5mg/day). Breastfeeding was more common among infants with ID and IDA (p for both <0.022), and they consumed less milk products than infants without ID/IDA (p for both <0.016). Higher consumption of milk products at 24 months of age associated with lower serum ferritin (p=0.001). In both infants and toddlers, higher consumption of meat and fish foods was a protective factor against ID (p for both <0.031).

Conclusions:

In Northern European healthy term infants and toddlers ID is common. Further studies are warranted to assess significance of ID on clinical health outcomes.

EP018 / #135

E-Poster Topic: *AS02 Infancy*

BABY FEED: A WEB APPLICATION FOR HEALTH PROFESSIONALS AND RESEARCHERS TO EASILY EVALUATE INFANT AND TODDLER DIETS

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Background and Aims:

To develop a portal in the web application “Baby Feed” where researchers can: (1) View the Food Frequency Questionnaire (FFQ) for infants and toddlers aged 0 to 24 months developed by our group; (2) Create participant usernames and passwords; and (3) Download the FFQ results. This online FFQ is a validated tool that could be used to easily evaluate infant and toddler diets in interventions for early childhood obesity prevention.

Methods:

In collaboration with the computer science department, our group previously converted the 55-item FFQ and nutrient/food database from paper format to web portals in Baby Feed. The web portals were built in MongoDB and deployed on Microsoft Azure. Next, a secure login system with usernames and passwords was created that directs users to their assigned portal: research or participant. Four tabs were created in the research portal that display the home, sample FFQ, user profiles, and results history. The FFQ results are automatically calculated by the nutrient/food database and the function to export data as a Microsoft Excel file was created (Figure 1).

[<](#)
[>](#)
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babyfeed.org
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[+](#)
[📄](#)

Research Portal

[Log out ↗](#)



[Home](#)
[Sample Questionnaire](#)
[User Profiles](#)
[Results History](#)

[Export Data](#)

Date	Questionnaire ID	Participant ID	Infant age (In months)	Infant gender	
2021-03-22	2-1616449714888	2	5	male	Results

Nutrient Breakdown

Nutrient	Daily Average
% Calories from Carbs	43.49755625523309
% Calories from Fat	52.27209423804521
% Calories from Protein	6.755284338783535
Added Sugars (by Total Sugars) (g)	0.942857142857143
Animal Protein (g)	9.813142857142857
Caffeine (mg)	0
Calcium (mg)	347.18228571428574
Carbohydrate (g)	73.39771428571427
Copper (mg)	0.796
Energy (kcal)	674.9594285714287
Fat (g)	39.201714285714296
Fructose (g)	1.8285714285714283

Results:

A web portal in Baby Feed was created where researchers can: (1) View the online FFQ; (2) Create participant usernames and passwords; and (3) Download the FFQ results, which are automatically available in nutrients, foods/beverages, and food groups consumed.

Conclusions:

This development of the research portal in Baby Feed was successful. Baby Feed could be used by health professionals and researchers to easily evaluate infant and toddler diets in interventions for early childhood obesity prevention.

EP019 / #147

E-Poster Topic: *AS02 Infancy*

GROWTH STATUS OF FULL-TERM SYMMETRIC AND ASYMMETRIC SMALL FOR GESTATIONAL AGE BABIES AT BIRTH

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Background and Aims:

Etiologically, symmetric and asymmetric small for gestational age (SGA) infants are two distinct entities. However, growth data on these two types of SGA infants is globally scarce, and altogether missing on Indian infants. Non-availability of authentic auxological information, prompted us to study comparative growth assessment of symmetric and asymmetric SGA babies of Indian origin.

Methods:

Body weight, length and head circumference were measured at birth amongst full-term (37-40 weeks) 100 symmetric, 100 asymmetric SGA and 100 AGA babies born in the labor room of a tertiary care center in India. Ponderal Index (PI) was used to categorize babies into symmetric SGA ($PI \geq 2.2 \text{ g/cm}^3$) and asymmetric SGA ($PI < 2.2 \text{ g/cm}^3$). Intra-group (symmetric vs. asymmetric), inter-group (SGA vs. AGA) and gender differences were quantified using Student's unpaired t-test.

Results:

Majority of the full-term SGA and AGA babies representing this study were born at 38 weeks of gestation. Though being etiologically more affected, symmetric SGA babies weighed marginally heavier than their asymmetric counterparts at each gestational age. While, asymmetric babies measured longer and possessed larger head circumference than symmetric SGA babies. Male symmetric SGA and AGA infants had higher mean weight, length and head circumference than female babies.

Conclusions:

Significantly lower growth attainments in SGA infants of two types and sexes as compared to AGA counterparts reveals that symmetric and asymmetric SGA infants demonstrate a compromised nutritional state, the magnitude of which was relatively more for symmetric than asymmetric SGA babies.

EP020 / #162

E-Poster Topic: *AS02 Infancy*

HEALTH RELATED QUALITY OF LIFE IN INFANTS FED A TERM INFANT FORMULA WITH A NEW LIPID BLEND AND LACTOBACILLUS REUTERI (L.REUTERI): A RANDOMIZED CONTROLLED TRIAL

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Background and Aims:

We have previously reported that experimental formula (EF) with a new lipid blend and L.reuteri when compared to a standard control formula (CF), was effective in promoting softer stools and reduce excretion of stool soaps in a randomized controlled clinical trial conducted in the Philippines (Chen 2020). We also hypothesized that these healthy infants would have generally high health-related quality of life (HRQoL) scores.

Methods:

HRQoL using the Infant Quality of life Instrument (IQI) expressed with 7 sub-domains was collected at the end of the trial in a subset (CF, n=32 EF, n=28)

Results:

Mean health utility (range 0-1) in EF (0.986) and CF (0.988) were both high and close to full health state (1). No statistical differences ($p=0.723$) were found between the groups in healthy utility or within any sub-domain. Furthermore, the numerical differences in generic utility-based measures between the two groups and a hypothetical healthy group (with healthy utility 1) were not clinically-relevant. These results are consistent with the good digestive comfort and low gastrointestinal burden seen in both groups throughout the study.

Conclusions:

Both formulas are well-tolerated and associated with high health related outcomes as evidenced by the seven domains within the infant quality of life instrument and the health utility score.

EP021 / #165

E-Poster Topic: *AS02 Infancy*

DAILY FORMULA INTAKE VARIES ACROSS DIFFERENT WEIGHT PERCENTILES – A CROSS-SECTIONAL ANALYSIS OF POOLED DATA.

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Background and Aims:

Breast vs human milk is the preferred source of nutrition for infants. The energy content and composition of human milk varies during the course of lactation adapted to the nutritional requirements of infants. In contrast, the energy content and composition of infant formula is fixed and volume intake recommendations are mostly based on weight or age of infants, but not on weight-for-age values.

This study aims to investigate potential differences in daily formula milk intakes of infants across different weight-for-age categories from 0-4 months.

Methods:

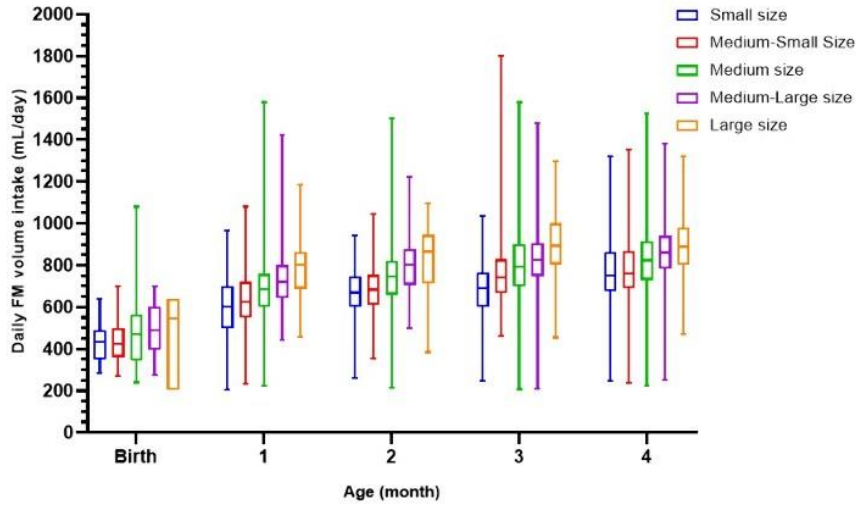
A cross-sectional qualitative analysis using a pooled dataset from 13 intervention studies (6.174 datapoints) was performed to assess daily (mL/day) and relative (mL/kg) formula milk intakes from 0-4 months for infants across five categories of weight-for-age percentiles: small (10-15), small-medium (15-25), medium (25-75), large-medium (75-85), and large (85-90).

Results:

Qualitative comparison showed that median daily formula milk volume intake of infants increased across weight categories (Figure1). Interestingly, the relative volume intake was higher in smaller infants

compared to larger infants (data not included).

Figure 1: Qualitative comparison of the median (min-max) daily formula milk volume intake for infants with different weight percentiles, for girls, 0-4 months.



Conclusions:

Our data suggests that a more precise daily formula recommendation considering both the percentiles of weight, as well as the age of infants, could be of interest.

EP022 / #166

E-Poster Topic: *AS02 Infancy*

ASSOCIATION OF GUT INFLAMMATION AND IMMUNE SYSTEM DEVELOPMENT WITH LINEAR GROWTH IN EARLY INFANCY IN NORTH INDIAN POPULATION

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Background and Aims:

From 2005-06 to 2014-15, stunting among under-five children registered a small reduction from 45% to 37% (NFHS III & IV). In addition to undernutrition, early and excessive colonization of infant gut leading to inflammation is a possible cause of severity of stunting in LMICs. One of the aims of the study was to see if fecal markers of gut inflammation are associated with linear growth faltering in early infancy.

Methods:

In a subgroup of 217 infants enrolled in a trial of vitamin D supplementation at a district hospital in North India, we collected stool samples, blood samples, and anthropometry data at various time points for first six months of life. We measured Calprotectin, Myeloperoxidase, PMN-Elastase, S100A12, and secretory IgA, in infant stool. We used linear regression to analyze associations between each biomarker and length or LAZ.

Results:

The concentrations of all fecal markers that we measured (except sIgA) increased from 1 week to 24 weeks. Most of them acquired stable levels by 4 weeks of age. We observed PMNE measured at 1 week to be inversely associated with subsequent lengths attained at 6, 10, and 14 weeks. PMNE and S100A12 were observed to be significantly higher in stunted infants as compared to the thriving infants.

Conclusions:

As compared to data from high-income countries concentrations of gut inflammation markers are higher in north Indian infants, and correlate negatively with overall growth in early infancy. This trend is pronounced in markers which are specific for neutrophil activity which reflects luminal neutrophilic infiltration in the gut mucosa.

EP023 / #175

E-Poster Topic: *AS02 Infancy*

AN INFANT FORMULA WITH NEW NATIVE ORGANIC DEMINERALIZED WHEY SUPPORTS ADEQUATE GROWTH AND IS WELL TOLERATED IN HEALTHY TERM INFANTS

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Background and Aims:

Recent studies suggest that industrial processes could impact the nutritional and physiological effects of proteins. True Green is an innovative and patented integrated process based on membrane technology with limited temperature and pH variations to better preserve native proteins. This study evaluated the growth, safety and tolerance in healthy term infants fed an infant formula containing True Green demineralized whey.

Methods:

Healthy term infants were randomized to receive organic cow's milk-based formula containing demineralized whey powder from cheesemaking (Control, n=30) or the same formula with True Green demineralized whey from organic milk (TG, n=32). A non-randomized breastfed (BF) group served as reference (n=39). Primary endpoints were growth patterns (weight, height, cranial perimeter, BMI) through the age of 6 months. Secondary endpoints included gastro-intestinal tolerance and associated behaviors and plasma amino acids profile at 3 months of age.

Results:

Growth patterns were similar in formula-fed groups. They closely tracked with BF during the 6-month study period. Both formulas were well-tolerated and similar for stool frequency and consistency, regurgitation, crying and adverse events. Parent-reported night sleep at 6 months was longer in TG compared with Control. Plasma tryptophan and leucine tended to be increased in TG compared to Control and phenylalanine was significantly increased.

Conclusions:

TG formula supports age-appropriate growth in healthy term infants and is well tolerated. Results suggest an improvement in night sleep with TG and subtle changes in plasma amino acids. Correlations between sleep and amino acid profile are being further investigated along with metabolomic profiles.

EP024 / #178

E-Poster Topic: AS02 Infancy

DIETARY DIVERSITY AND NUTRITIONAL STATUS BY HIV EXPOSURE AMONG CHILDREN UNDER 2 YEARS OF AGE IN RURAL LIMPOPO, SOUTH AFRICA.

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Background and Aims:

Children under 5 are vulnerable and their growth is affected by nutritional intake. Few studies have evaluated dietary diversity (DD), a proxy measure of dietary adequacy, among HIV-exposed uninfected (HEU) and HIV-unexposed uninfected (HUU) in resource-limited settings.

Methods:

Data were collected from caregiver-child dyads participating in an ongoing cluster-randomized trial in rural Limpopo, South Africa. HIV exposure was based on maternal self-report. We used WHO standards to calculate length-for-age z-scores (LAZ) and weight-for-age z-scores (WAZ). Dietary diversity (DD) defined as number of food groups consumed over previous 24 hours. We estimated mean differences between HEU and HUU children in outcomes at 7 and 17 months of age.

Results:

At 7M comparing HUU children (n=235), HEU children (n=71) had lower mean LAZ (-0.52 SD1.12 vs -0.00 SD1.25; $p<0.05$) and WAZ (0.10 SD 1.13 vs 0.47 SD1.19; $p<0.02$). No differences in mean LAZ or WAZ at 17M, though rate of underweight (WAZ<-2SD) was higher in HEU children (4.9% vs 0.5%; $p=0.01$).

Mean DD at 7M was 4.39 (SD2.77) across gender. Compared to HUU children, mean DD was lower among HEU children (4.00 SD2.73 vs 4.49 SD2.77; $p=0.08$).

At 17M, mean DD was 5.63 (SD2.75), DD similar among HUU/ HEU children (5.76 SD2.85 vs 5.22 SD2.60; $p=0.333$). No association with sub-optimal DD (<5 of 8 food groups) and being underweight/stunted at 17M ($p>0.05$).

Conclusions:

At 7M, DD was substantial for early weaning. Causes such as biology related to HIV exposure, poor nutrient absorption, loss, increased energy utilization and not only poor dietary intake contribute to faltering growth in HEU children.

EP025 / #184

E-Poster Topic: *AS02 Infancy*

STUDY OF THE PREVALENCE OF VITAMIN D DEFICIENCY AND ITS DETERMINING FACTORS IN INFANTS IN CENTRAL-WEST BRAZIL

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Background and Aims:

OBJECTIVES: To assess the prevalence of vitamin D deficiency in children at Early Childhood Education Centers in Goiânia Midwest of Brazil, associating it with possible risk factors and clinical signs.

Methods:

This is an observational, cross-sectional and analytical study, carried out in Goiânia, with a sample of 164 children aged 6 to 48 months, evaluated between February and September 2018. It was performed clinical evaluation of children, data collection about socio-demographic characteristics from those responsible for them and biochemical analysis of vitamin D dosage, considering the deficiency to be below 20 ng / mL. Statistical analysis was performed using SPSS® software version 20.0.

Results:

The vitamin D dosage varied between 4.1 and 40.5 ng / mL, with 77.2% of the children having vitamin D levels under 20 ng / mL, characterizing its deficiency. Only 31.6% regularly used oral vitamin D replacement, with no significant correlation. Only two patients had frontal bosses and no patient had rachitic rosary, kyphosis or wrist enlargement, and it was not possible to establish a statistical correlation between them with vitamin D deficiency.

Conclusions:

A high prevalence of vitamin D deficiency was identified in the population studied, in addition to the precariousness of clinical changes related to this vitamin deficiency, dissociating the image of vitamin D deficiency from classic rickets. There were also no risk or protective factors associated with prophylactic use of multivitamins, sun exposure, and sunscreen use.

E-Poster Topic: AS02 Infancy

HEALTHCARE PROFESSIONAL AND PARENTAL SURVEY EXPLORING THE EFFECTS OF AN AMINO ACID FORMULA CONTAINING SYNBIOTICS IN THE MANAGEMENT OF COW'S MILK ALLERGY

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Background and Aims:

Modification of gut dysbiosis by adding synbiotics to amino acid formula (AAF-S) has been associated with less infections and healthcare use in infants with cow's milk allergy (CMA), but practical, real-world evidence is lacking.

Methods:

20 healthcare professionals (HCPs; 10 dietitians, 10 GPs) using AAF-S clinically, and 10 parents of infants with CMA recently prescribed AAF-S, completed a survey. Multiple-choice questions gathered data on respondents observations of infants' clinical outcomes (symptoms, infections, healthcare use), quality of life (QoL) and satisfaction with AAF-S use (mean treatment duration 5.9 ± 4.5 mo; mean age of initiation 5.3 ± 3.3 mo).

Results:

Belief that AAF-S promoted a healthier gut microbiome was the main reason behind HCP use of AAF-S. Overall improvement in CMA symptoms was observed by 100% of HCPs and 89% of parents, likely accounting for the improved QoL amongst infants and families reported by 100% of HCPs and parents. Most HCPs and parents observed reductions in infections and healthcare use (GP visits, hospital visits, medication prescriptions) (Table). All respondents were satisfied with AAF-S.

Table. Parental and HCP observations

	% respondents	
	Parents	HCPs
Reduced incidence \geq 1 infection types	89	75
Reduction in \geq 1 medication	89	100
Fewer GP visits	70	70
Fewer hospital visits	67	79

Conclusions:

These results indicate that the benefits of AAF-S observed in clinical trials of infants with CMA are evident in clinical practice. As hospital visits, GP visits and prescriptions contribute to the healthcare costs associated with CMA, these findings have potential financial implications.

EP027 / #20

E-Poster Topic: AS02 Infancy

INFANT FEEDING PRACTICES IN 2008 AND 2018 IN CHINA: THE IMPORTANCE OF EARLY INITIATION OF BREASTFEEDING

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Background and Aims: Background and aims: Increasing exclusive breastfeeding during the first six months (EBF) globally to 50% in 2025 was highly advocated by the World Health Organization. Infant feeding in China are below the world average level. This study was conducted to illustrate infant feeding in Jilin province, China and to explore the determinants of infant feeding practices. The role of early initiation of breastfeeding within the first hour after birth (EIB) in achieving optimal infant feeding was specifically investigated.

Methods: Data from the China National Health Service Survey in Jilin in 2008 (n=490) and 2018 (n=491) were analyzed. Logistic regressions were performed to identify factors influencing infant feeding practices after adjusting for potential confounders.

Results: The prevalence of EIB (<28%) and EBF (<50%) were low in two surveys. The rate of breastfeeding initiated within the 30 minutes decreased significantly from 21.93% in 2008 to 17.24% in 2018. EBF was positively associated with EIB (OR=2.65, 95% CI: 1.65-4.26) and negatively associated with caesarean section (OR=0.65, 95% CI: 0.43-0.98) in 2018. Continued breastfeeding at one year and timely introduction of complementary foods were positively associated with mothers living in urban areas (OR=1.92, 95% CI: 1.12-3.31) and negatively associated with mothers delivering in private hospitals/home (OR=0.42, 95% CI: 0.20-0.89), respectively in 2018.

Conclusions: This study provided evidence for the importance of EIB in achieving EBF in China. Findings suggest a need to promote vaginal delivery, and to target rural residences and those giving birth in private hospitals/home in the promotion of optimal feeding practices.

EP028 / #206

E-Poster Topic: AS02 Infancy

EFFECT OF A NEW PARTIALLY HYDROLYZED WHEY-BASED FOLLOW-UP FORMULA WITH AGE-ADAPTED PROTEIN CONTENT ON GROWTH IN HEALTHY TERM INFANTS

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Background and Aims:

Standard infant formulas often provide more protein than breast milk, and excess protein may have adverse effects later in life. This study evaluated a new partially hydrolyzed whey-based (pHF-W) follow-up formula (FUF) with age-adapted protein content on growth and tolerance in healthy infants.

Methods:

This open-label interventional study assessed growth and gastrointestinal (GI) tolerance in formula-fed infants (n=108) fed standard pHF-W formula (NAN HA1; 1.9g protein/100 kcal) from enrollment (age ≤30 days[d]; mean age=4.7d) until age 120d followed by new pHF-W FUF (1.6g protein/100 kcal) from age 120d until 360d. Breastfed infants served as a reference group (n=86). Primary outcome was weight gain velocity (WGV) measured as mean daily WG from enrollment to age 180d, compared against WHO growth standards and the breastfed group, with non-inferiority margin of -3g/d.

Results:

WGV from enrollment to age 180d in formula-fed infants was non-inferior to breastfed infants and WHO standards. In the per-protocol set, the estimated mean difference (98.75% one-sided confidence interval) in WGV between formula-fed (mean, 24.0g/d) and breastfed infants (23.7g/d) was 0.23 (-2.18) in girls and 0.62 g/d (-1.64) in boys. The difference between formula-fed infants and the WHO median was 1.99g/d (-0.26) in girls and 0.47g/d (-2.32) in boys. Parent-reported GI symptoms as well as the incidence of adverse events (both overall and allergy-related) were similar between formula-fed and breastfed groups.

Conclusions:

The new pHF-W follow-up formula with age-adapted protein content, fed sequentially after standard pHF-W starter formula, supports adequate infant growth and is safe and well-tolerated.

EP029 / #222

E-Poster Topic: AS02 Infancy

IMPACT OF PROTEIN TYPE ON PROTEIN DIGESTIBILITY CORRECTED AMINO ACID SCORE (PDCAAS) OF PRESCHOOL CHILDREN MILKS (IN VITRO MODEL)

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Background and Aims:

Preschool Children Milks (PCM) are products formulated to meet the specific nutritional needs of children 3 to 5 years and can be made from different protein sources; cow's milk being the most common. However, plant-based beverages consumption is increasing, and they can also be used by children with lactose intolerance (LI) or cow's milk allergy, although their protein quality is still in doubt. Lactose-free PCM (LF-PCM) are other option for children with LI. The aim of this work was to measure PDCAAS of five commercial PCM - including one plant-based preschool children beverage - with different protein compositions (PCM1: 100% Isolate Soy Protein (ISP); LF-PCM 2: 28.3% Whey Protein (WP) + 71.7% Casein (CS); PCM 3: 50.0% WP + 50.0 % CS; PCM4: 57.0% WP + 43.0% CS; LF-PCM5: 63.0% WP + 37.0% CS).

Methods:

PDCAAS were determined using K-PDCAAS kit and calculated according to instructions.

Results:

PDCAAS values varied between 0.7 (PCM1) to 1.0 (PCM5), showing that higher WP contents in the formulation were positively correlated with protein quality, indicated by a highest PDCAA score (1.0 to PCM5; $p < 0.001$). On the other hand, PCM1 (ISP Beverage) showed the lowest PDCAAS score (0.7; $p < 0.001$). Since FAO/WHO recommends PDCAAS score to be greater than 0.6 to meet preschool children's needs, all formulations are within adequate values.

Conclusions:

Protein source and WP:CS ratio in cow's milk PCM can interfere in protein quality and digestibility of PCM, with greater results being from animal protein source, with higher WP:CS ratio. Lactose content doesn't interfere PDCAAS score.

ANTHROPOMETRIC DEFICITS ARE COMMON AND OVERLAP IN INFANTS AGED UNDER-SIX MONTHS ATTENDING HEALTH CENTRES IN THE OROMIA REGION, ETHIOPIA. A CROSS-SECTIONAL SURVEY.

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Background and Aims:

Poor understanding of malnutrition burden is a common reason for not prioritizing the care of small and nutritionally at-risk infants aged under-six months (hereafter infants) in low and middle-income countries. We aimed to:

- a) Estimate the prevalence of anthropometric deficits in infants attending health centres in the Oromia region, Ethiopia, using the Composite Index of Anthropometric Failure (CIAF).
- b) Assess overlaps between wasted, stunted, underweight, low Mid-upper Arm Circumference (MUAC).

Methods:

We undertook a two-week long survey of all infants visiting each of 18 health centres located in the Oromia region. We measured weight, length, and MUAC; and calculated weight-for-length z-score (WLZ), length-for-age z-score (LAZ), and weight-for-age z-score (WAZ). We defined wasted, stunted, and underweight as WLZ, LAZ, and WAZ <-2, respectively; and low MUAC as MUAC <11.0cm if aged <6 weeks and <11.5 thereafter. We defined CIAF as any infant with WAZ, LAZ or WLZ <-2.

Results:

The prevalence of anthropometric deficits is presented in Table 1. Overall, one-fifth of infants had some form of anthropometric deficits (i.e. CIAF 'positive'), and 10.7% (95% CI: 8.93; 12.7) had multiple anthropometric deficits. Underweight was the commonest: 12.9% (95% CI: 11.0; 15.1). The overlap of indicators is shown in Figure 1. Underweight and a low MUAC, as single indicators, appears to capture most infants that are concurrently wasted and stunted.

Table 1. Prevalence of anthropometric failure in infants aged under-six months attending health centres in the Oromia region, Ethiopia.

Anthropometric indicator	%	95% CI
Low MUAC (MUAC <11.0cm if aged <6 weeks, <11.5 thereafter)	17.6	15.4; 20.1
Wasted (WLZ <-2)	10.9	9.11; 12.9
Stunted (LAZ <-2)	9.81	8.13; 11.78
Underweight (WAZ <-2)	12.9	11.0; 15.1
CIAF (WLZ, LAZ, or WAZ <-2)	21.7	19.2; 24.3
CIAF categories		
No failure (WLZ, LAZ, and WAZ ≥-2)	78.4	75.7; 80.8
Wasted only (WLZ <-2, but LAZ and WAZ ≥-2)	5.15	3.95; 6.68
Wasted & Underweight (WLZ and WAZ <-2), but LAZ ≥-2)	4.47	3.36; 5.91
Wasted, Stunted & Underweight (WLZ, LAZ, and WAZ <-2)	1.26	0.73; 2.16
Stunted & Underweight (LAZ and WAZ <-2, but WLZ ≥-2)	4.95	3.78; 6.46
Stunted only (LAZ <-2, but WLZ and WAZ ≥-2)	3.59	2.61; 4.92
Underweight only (WAZ <-2, but WLZ and LAZ ≥-2)	2.23	1.49; 3.34

MUAC: Mid-Upper Arm Circumference; WLZ: Weight-for-length z-score, LAZ: Length-for-age z-score, WAZ: Weight-for-age z-score, CIAF: Composite Index of Anthropometric Failure.

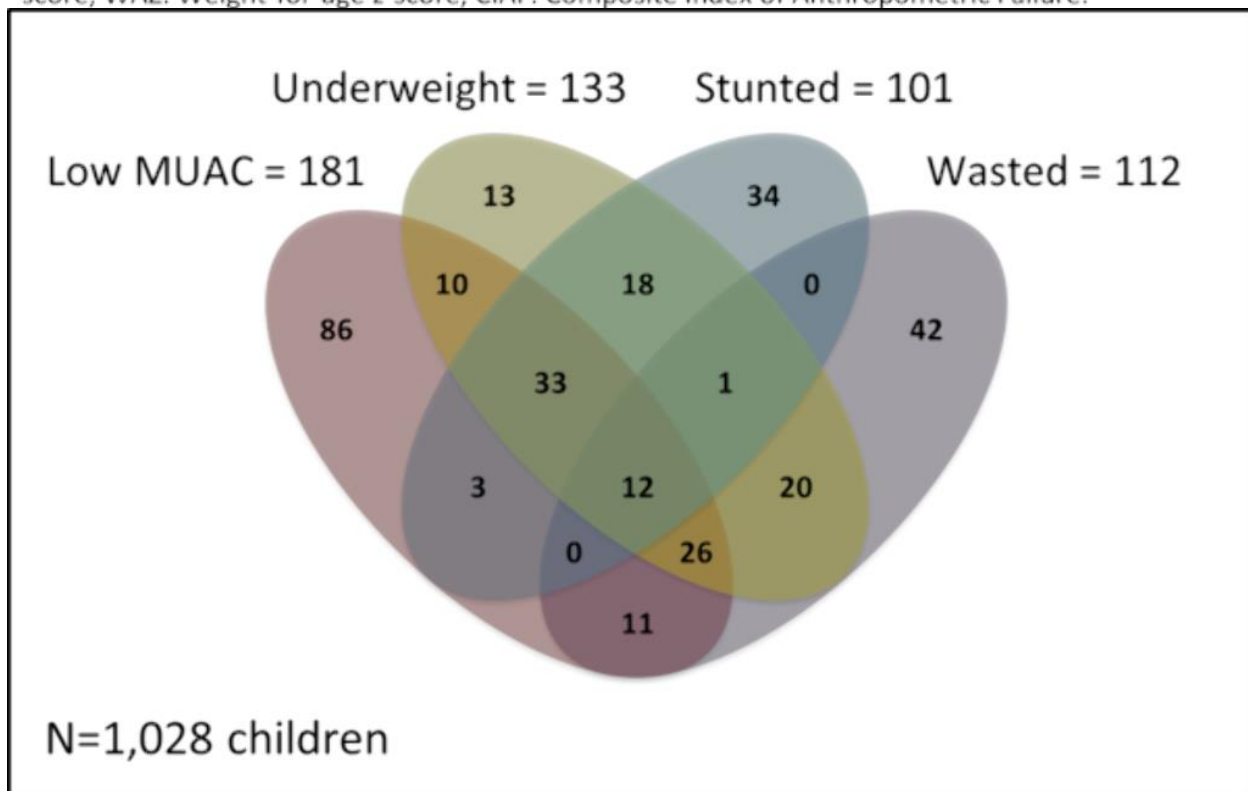


Figure 1. Overlap of anthropometric failure indicators in infants aged under-six months attending health centres in the Oromia Region, Ethiopia.

Conclusions:

Anthropometric deficits, single and multiple, are prevalent in infants attending health centres the Oromia region, Ethiopia. Future work is needed to understand associated mortality/morbidity risks.

EP031 / #258

E-Poster Topic: *AS02 Infancy*

FAILURE TO THRIVE IN AN INFANT WITH A HYPOTHALAMIC TUMOR: A CASE OF DIENCEPHALIC SYNDROME

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Background and Aims:

To present a case of an infant presenting with failure to thrive and hypothalamic tumor

Methods:

CASE PRESENTATION

We report a case of a 20-month old male presenting with nystagmus and poor weight gain. He was active and playful, and was described by his mother as hyperkinetic despite his emaciated appearance. Magnetic Resonance Imaging (MRI) showed 4.2 x 3.6 x 3.6 cm well-defined enhancing suprasellar mass, which appeared to be centered on the optic apparatus and the hypothalamic region, characteristic of an optic-hypothalamic Pilocytic Astrocytoma. Enteral nutrition via nasogastric tube was initially instituted to provide adequate and sustained nutrition while ongoing chemotherapy. After 10 weeks of weekly induction chemotherapy with Carboplatin and Vincristine, the size of the mass reduced along with improvement of weight of the patient.

Results:

DISCUSSION

Diencephalic syndrome is caused by a tumor most commonly located in the hypothalamic-optic chiasm. The prevalence is not known, but case reports usually involved infants and young children. It is suspected in a child who has failed to gain weight despite an apparently normal diet. Surgery, radiation, and chemotherapy alone or in various combinations have been used in many literatures. Nutritional supplementation is of utmost importance for sustenance of treatment and for catch-up growth.

Conclusions:

Diencephalic syndrome should be included in the differential diagnoses in children with unexplained failure to thrive, because it has a potential for morbidity and mortality if not diagnosed and treated early. Among pediatricians, providing adequate nutrition should take precedence for the growth and development of the child.

EP032 / #269

E-Poster Topic: *AS02 Infancy*

COMPLEMENTARY FEEDING AND NUTRITIONAL STATUS OF CHILDREN UNDER 2 YEARS OLD

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Background and Aims:

Introducing sufficient and adequate complementary foods for infants at 6-23 months is necessary as the energy and nutrient from breastfeeding alone are no longer enough to support an elevated nutrient demand for their growth and development. However, these complementary feeding practices are still suboptimal, especially in developing countries.

The study aim was to investigate complementary feeding practices and the nutritional status of children under 2 years old.

Methods:

An observational study design included a feeding practice questionnaire, anthropometric measurement, and a 24-hour dietary recall were performed. A total of 125 children under 2 years in Patimpeng sub-districts, Indonesia, was assessed.

Results:

The prevalence of stunted children was 26%. A 39% of infants at 4-5 months were already fed complementary food. Inappropriate food was observed on portion size, consistency, and the frequency (% of children) was 92%, 90%, and 89%. Similarly, inadequate intake of the following nutrients (% of children) : energy (83%), carbohydrate (85%), fat (91%), protein (68%), zinc (62%), iron (88%), and vitamin D (98%). Consumption of commercial complementary foods, as snacks and main food, was 16% and 33% for children 6 to 8 months, respectively.

Conclusions:

Large proportions of children had inappropriate and inadequate complementary foods. Efforts are required to improve infant's and children's diet for their optimal health.

EP033 / #330

E-Poster Topic: AS02 Infancy

IMPROVEMENT OF GASTRO-INTESTINAL SYMPTOMS IN INFANTS BY GOAT MILK-BASED FORMULA INTERVENTION: A RANDOMISED, OPEN, CONTROLLED PILOT STUDY

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Background and Aims:

Over half of infants aged 0-6 months experience functional gastro-intestinal (GI) disorders. Anecdotal evidence suggests that the consumption of goat milk-based infant formula (GMF) reduces GI complaints. Our main objective was to demonstrate that the decrease in infants' discomfort after being fed with GMF for 2 weeks was equivalent to, or better than, standard medical treatment.

Methods:

Twenty-four formula fed infants aged 1-3 months old were enrolled in an open randomised controlled non-inferiority trial. All had a cow milk-related symptom score (CoMiSS™) between 6-12 points at baseline, indicating GI, skin and respiratory discomfort. Infants were randomized to Kabrita® GMF with β -palmitate and GOS or Spanish standard medical treatment (SMT): *Lactobacillus reuteri* while continuing infant formula of parent's choice. GI symptoms, assessed by CoMiSS™, and height, weight and head circumference were measured at two week intervals for 4 visits and then once a month until the age of 6 months. GI symptoms between treatments were studied using linear mixed models with baseline age as covariate.

Results:

Eight infants were omitted due to interfering medication use or lack of data, resulting in 16 infants. At baseline, the CoMiSS (mean \pm SD) in the GMF group was 8.9 \pm 0.5 and in the SMT group 9.1 \pm 0.5. After two weeks, CoMiSS were 5.2 \pm 0.9 (GMF) and 6.6 \pm 1.0 (SMT). A stronger beneficial effect was observed for GMF at all visits, although not statistically significant. Growth and adverse effects were comparable between the groups.

Conclusions:

Both groups showed improved GI comfort within two weeks, indicating that GMF is equivalent to the standard medical treatment.

EP034 / #345

E-Poster Topic: *AS02 Infancy*

MYTHS ABOUT THE BREASTFEEDING AND THE DIET OF BREASTFEEDING MOTHERS

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Background and Aims:

Breastfeeding has numerous advantages for both mother and baby, whether in the short or long term, however there are still some myths associated with breastfeeding. The aim of this study was to learn about the main myths related to breastfeeding and about the diet of women who breastfeed.

Methods:

This is a descriptive observational cross-sectional study, in which a total of 50 individuals aged between 18 and 64 years were evaluated. To assess the myths of breastfeeding, an online questionnaire consisting of 21 questions was formulated through the "Google forms" platform and distributed through emails and social networks. The sample was divided into age groups, classified as young adults (18-30 years old) and adults (31-64 years old). For the treatment and analysis of the data the programs Microsoft Excel and IBM SPSS Statistics v.26 were used.

Results:

The present study involved 50 participants, of whom 33 had children. The participants had an average age of 30.7 years, with 68% being young adults and mostly female (88%). Among the myths are: "some foods stimulate milk production", "women should avoid the consumption of certain foods while breastfeeding" and "some foods cause colic in babies". It was also observed that young adults and those with lower education level had more myths ($p < 0.05$) but no differences were found between the fact of having children or not.

Conclusions:

It is concluded that there are still many myths associated with breastfeeding and there is need to bet more on information about breastfeeding and the diet of the breastfeeding woman.

EP035 / #433

E-Poster Topic: AS02 Infancy

SEX VERSUS GENDER: FACTORS ASSOCIATED WITH LINEAR GROWTH IN INFANTS IN ECUADORIAN ANDES

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Background and Aims:

Although girls may have an early life biological advantage over boys, gendered treatment can alter health outcomes. Ecuador has an unusually high ratio of male to female infant mortality, but gender norms have been reported to favor males.

Methods:

This analysis of baseline data from the Lulun Project, a randomized controlled trial conducted in rural Andean communities of Ecuador, investigates the roles of sex and gender in undernutrition among infants 6 to 9 months of age. Twenty-four-hour recall frequencies were used to assess dietary intake. Food outcome models were analyzed as prevalence ratios calculated using a binomial distribution with a log link or robust Poisson regression.

Results:

Males were more often fed liquids other than breastmilk within their first 3 days of life (17.1% vs 5.2%, $P = 0.026$). Compared with females, males were less likely to be fed eggs by 33% (95% CI: 0.46, 0.96), cheese, yogurt, or other milk products by 40% (95% CI: 0.39, 0.92), and yellow fruit by 44% (95% CI: 0.33, 0.97). Prevalence of males with an adequate dietary diversity score (≥ 4) was reduced by 27% relative to females (95% CI: 0.54, 0.99). Males fared worse in length-for-age z scores (-2.16 vs -1.56, $P = 0.000$), weight-for-age z scores (-0.86 vs -0.33, $P = 0.002$), prevalence of stunting (50.6% vs 23.4%, $P = 0.000$), and plasma concentrations of dimethylglycine (1.25 vs 1.65 $\mu\text{g/mL}$, $P = 0.021$).

Conclusions:

Male infants were shown to receive lower quality complementary foods and have worse anthropometric measures than female infants.

EP036 / #446

E-Poster Topic: *AS02 Infancy*

ARE WHO GROWTH STANDARDS (WHO-CGS) APPROPRIATE FOR THE ASSESSMENT OF GROWTH FROM BIRTH TO 2 YEARS IN CHILDREN FROM COLOMBO, SRI LANKA?

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Background and Aims:

Childhood growth has been found to differ from the WHO-growth-standards(WHO-CGS)in other parts of the world. Sri Lanka uses WHO-CGS for growth assessment. The aim of this study was to compare the anthropometry of healthy children from birth to two years, fed according to Infant and Young Child Feeding (IYCF) guidelines, with the WHO-CGS in order to determine if it is appropriate for growth assessment in Sri Lankan children.

Methods:

Observational, analytical, longitudinal, prospective cohort study, from birth to 2 years, from 2015–2019, conducted at a tertiary care maternity hospital, in Colombo, Sri Lanka. Non smoking women, >18 years old, with a singleton pregnancy, who agreed to follow IYCF guidelines, living in the Colombo, admitted to the hospital for delivery were recruited by purposive sampling. Their babies born at term gestation, were included, if healthy, after informed written consent. Children with disease conditions affecting growth were excluded. Ethics clearance was obtained from Faculty of Medicine, University of Colombo.

Results:

We assessed 353 newborns(51% male) at birth of which 157, 76 and 36 were seen at 1, 12 and 24 months of age. Weight-for-age, length-for-age, weight-for-length and BMI-for- age, were one SD lower, with a left shift in the z scores, in our study population, compared to WHO-CGS. A significant positive correlation was seen between weight and length of parents and children.

Conclusions:

Weight, length and BMI in our study population was one SD smaller than WHO-CGS, making it inappropriate for growth assessment. Differences in parental anthropometry may account for population differences. Population specific growth standards are indicated.

EP037 / #45

E-Poster Topic: *AS02 Infancy*

FORTIFIED INFANT CEREALS AND PREVENTED COGNITIVE LOSSES FROM REDUCING IRON DEFICIENCY ANEMIA

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Background and Aims:

Fortified infant cereals (FIC) have been shown to significantly reduce anemia as it helps alleviating iron-deficiency anemia. This effectiveness is based on several systematic reviews (Das 2013, Dewey 2008, Eichler 2012) showing a reduction of anemia by 50%. In clinical trial, a commercially available fortified infant cereal (cerelac) was associated with an equivalent reduction of anemia in Cameroon (Ekoé 2020). In terms of efficacy Prieto (2020) using demographic health surveys showed a positive association between consumption of FIC and improved anemia status. Based on sales volumes of Fortified Infant Cereals, the objective of this paper is to estimate the effect for the 8.2 million children consuming FIC regularly, on improving their hemoglobin concentration. The aim is to estimate the cognitive benefits based on Lozoff's work (2006) for these consumers protecting them from moderate and severe forms of Iron Deficiency Anemia.

Methods:

A comparative risk assessment model as proposed by Plessow (2015) in the estimation of the Burden of Micronutrient Deficiencies in India and Pakistan was used to calculate the hemoglobin improvements and associated cognitive impacts.

Results:

Based on the WHO estimation of the prevalence of anemia, regional attribution of anemia to Iron Deficiency and Nestlé's data on volumes sold in 2019 of Infant Cereals in 14 selected markets, we estimated 2.8 million IQ were gained in these markets.

Conclusions:

The results show how total volumes of Cerelac are positively associated with gains in IQ points.

EP038 / #48

E-Poster Topic: AS02 Infancy

MATERNAL LIFESTYLE CHOICES, BREASTFEEDING STATUS AND PARITY INFLUENCE THE DIVERSITY OF FIRST FOODS OFFERED AT WEANING

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Background and Aims:

Mothers are the main gatekeepers of the range of weaning foods offered to their babies. Their approach may be influenced by their own dietary habits, their choices around breast versus formula-feeding, and prior experience. Accordingly, the diversity and sequence of foods offered during the three months after first solid food introduction has been analysed in relation to these parameters.

Methods:

Maternal diet was assessed by questionnaire, which yielded fruit and vegetable (F&V) frequency and diversity scores, and average portions per day consumed. Mothers (n=59) recorded new foods offered per month.

Results:

Babies began weaning at 24.6 ± 1.78 weeks (mean \pm sd) and were offered a median of 48 different foods (range 23-82). These comprised vegetables (32.4%), fruits (21.5%), protein foods (17.9%), grain/grain products (15.4%), dairy/dairy alternatives (6.3%) and non-core foods (6.5%). Month influenced the number of new fruits, vegetables, grain and dairy foods offered ($P=0.002$ to <0.001), with more in month 1. Mothers' portions F&V per day ($\beta 2.35$ $P=0.021$), primiparity ($\beta 4.38$ $P=0.016$) and breastfeeding status ($\beta 4.40$ $P=0.029$) predicted the total number of different F&V offered to infants. Conversely, the number of non-core foods offered increased as mothers' F&V diversity score decreased ($\beta -0.093$ $P=0.024$). The latter score (Max=50) predicted the number of nuts/seeds, oily fish and 'other' grains ($\beta 0.029$ to 0.051 , $P=0.042$ to 0.003), and whether sweetened ($\beta -0.018$ $P=0.009$) or non-sweetened yogurt ($\beta 0.025$ $P=0.004$) was offered. Mothers with BMI $>25\text{kg/m}^2$ offered fewer dark green vegetables, citrus fruits, and beans/peas ($P<0.05$).

Conclusions:

These influences on diet diversity at weaning have implications for establishing healthy food preferences throughout the life-course.

EP039 / #70

E-Poster Topic: *AS02 Infancy*

FOOD CONSUMPTION PATTERNS DURING COMPLEMENTARY FEEDING IN THE MIDDLE EAST

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Background and Aims:

The complementary feeding (CF) period is critical for growth, development, and establishing healthy eating habits in children. The aim of this study was to characterize the CF practices of two countries in the Middle East.

Methods:

Dietary intake surveys were conducted in the scope of the Feeding Infants and Toddlers studies (FITS) in the United Arab Emirates (UAE) and Lebanon. A total of 221 infants (6-11 months) and 312 toddlers (12-23 months) were included (Lebanon n= 370 and UAE n = 163). Dietary intake information was gathered based on in-person interviews with the primary caregiver. All foods were allocated to 1 of 65 food groups adapted from the US FITS. Average quantities of food groups per capita were calculated.

Results:

Sweets, including sweetened beverages, were highly consumed in both countries with the intakes among Lebanese children ranging from 70 – 164 g/day. In both countries, a relatively high intake of low nutrient dense grains was noted, with unfortified rice being the main grain. Potato was the main vegetable consumed in the UAE, while in Lebanon it was tomato and tomato sauces. Consumption of meats and other protein sources among infants was 8 g and 7 g per day in the UAE and Lebanon, respectively.

Conclusions:

The relatively high intakes of nutrient poor foods, such as sweets and rice, during CF in the Middle East is further evidence of inadequate dietary intakes in the region. Communication and education about age-appropriate nutrient dense foods is essential to guide parents and caregivers during CF.

EP040 / #72

E-Poster Topic: *AS02 Infancy*

RECENT FINDINGS ON MATERNAL DIET AND BREASTMILK COMPOSITION

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Background and Aims:

Various studies reported associations between maternal dietary intake and breastmilk composition, but evidence is scarce. Additionally, breastmilk composition is highly variable and difficult to sample. In 2016, a systematic review summarized the available evidence, showing large differences in exposure and outcome variables, as well as sampling protocols. Consequently, no conclusion could be drawn. To present the current status of knowledge, we updated that systematic review.

Methods:

PubMed was systematically searched for articles published between January 2015 and March 2021. Studies were included when providing quantitative information on maternal dietary intake and breastmilk composition in healthy mothers. Studies on fortification, supplements or contaminants were excluded.

Results:

In total, 26 new studies were identified. Associations between maternal intake and breastmilk fatty acid content were studied most extensively, including 17 publications identified in the 2016 review and 14 additions in the updated search. Combining both searches, most evidence was observed for positive associations between maternal diet and breastmilk DHA (n=11) and total PUFA (n=10) content. Other identified components were total protein (n=9), carbohydrates (n=5), total fat (n=10), various vitamins (n=7) and minerals (n=9), flavonoids (n=1) and carotenoids (n=2). Nonetheless, methodology and exposure variables were still diverse, including dietary patterns, nutrient intakes and food group intakes.

Conclusions:

Evidence on an association between maternal diet and breastmilk composition is growing, especially for fatty acid content. Yet, there are still many methodological differences across studies. Homogeneous exposure variables and the development of standard procedures for breastmilk sampling may aid future comparison across studies.

EP041 / #83

E-Poster Topic: AS02 Infancy

THE DETECTION OF GROWTH FALTERING IN INDONESIAN INFANTS SOON AFTER BIRTH

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Background and Aims:

Early detection of child growth faltering is essential to allow early treatment and prevention. This study aimed to identify the timing of growth faltering initiation and its associated risk factors during the first year of life in Indonesia.

Methods:

A cohort study was conducted in 2015-2017 in Yogyakarta, Indonesia. Anthropometric measurements of weight-for-age (WAZ), length-for-age (LAZ) and weight-for-length z-scores (WLZ) were compared to the 2006 WHO Growth Standards. Weight and length velocity z-scores (WVZ and LVZ) were compared to the 2009 WHO Growth Velocity Standards. Factors associated with growth faltering (i.e., WVZ < 5th percentile) in the first year of life were examined using logistic regression models.

Results:

A total of 359 infants were enrolled. Most of anthropometric measurements were below the 2006 and 2009 WHO growth standards median, indicating that faltering started soon after birth (Figure 1&2). Result also showed that the prevalence of growth faltering at 4-6 months was five times higher than the first 2 months (29% vs 6%). Based on multivariable logistic regression models, frequent acute respiratory infection episodes (≥ 6 episodes, AOR 3.06, 95%CI 1.2-7.83) and short birth interval (<2 years, AOR 4.16, 95%CI 1.25-13.89) were independent risk factors for growth faltering in 0-12 months of age, while formula milk intake in 6-12 months (AOR 0.55, 95%CI 0.34-0.91) was a protective factor.

Figure1.

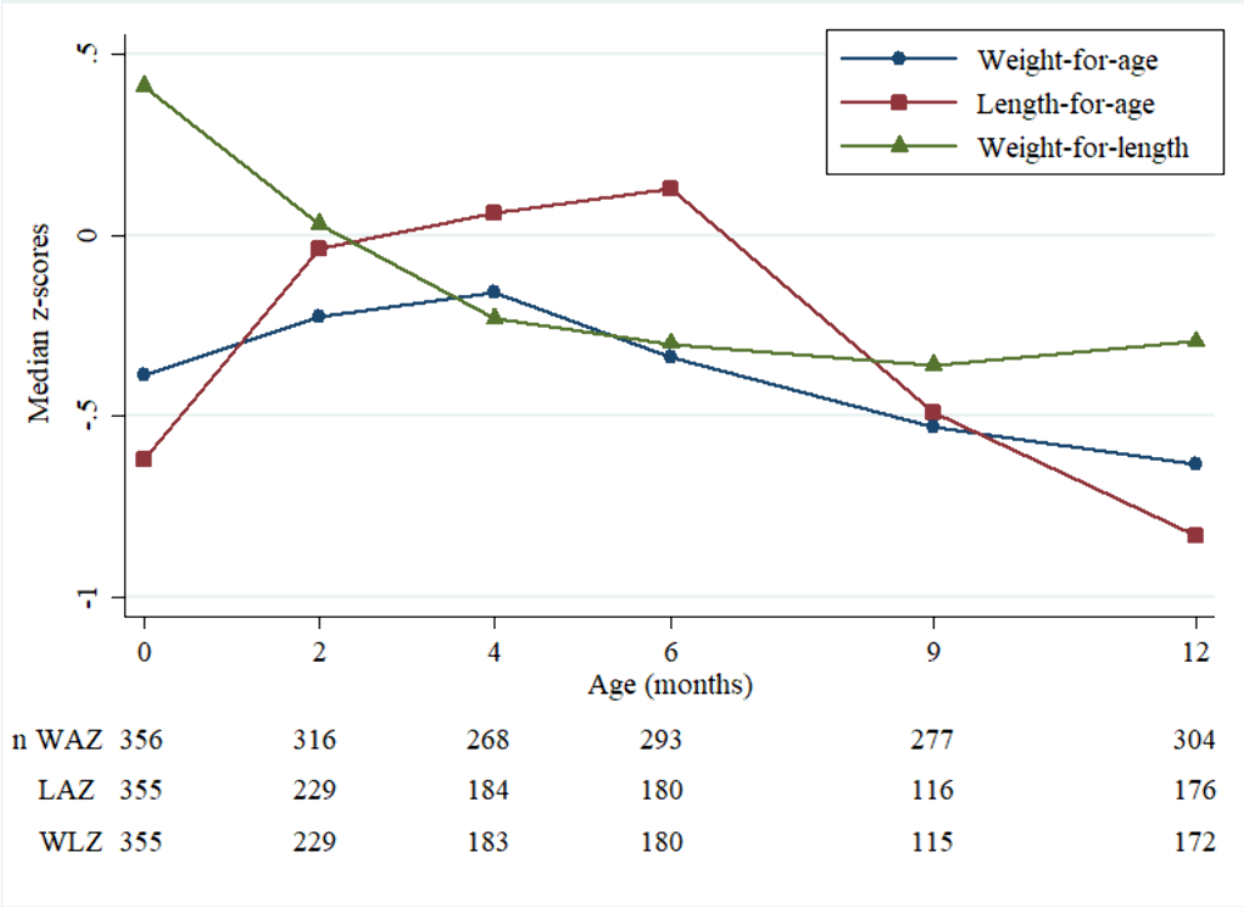
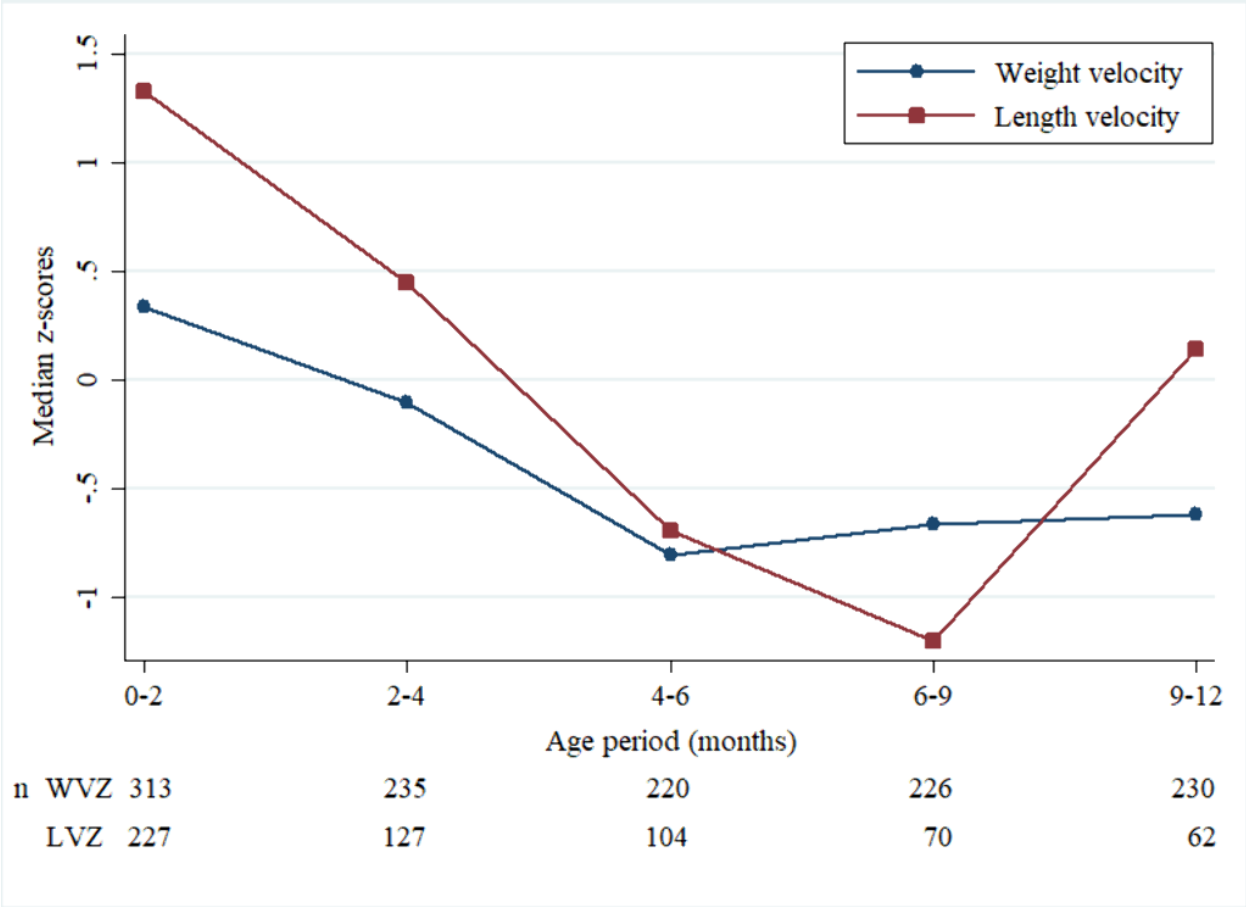


Figure2.



Conclusions:

Prevention of growth faltering by modifying its risk factors should be started since pre-planning of pregnancy (i.e., at least two years birth interval) and continued throughout the first year of infancy (i.e., prevention from frequent infections).

EP042 / #89

E-Poster Topic: *AS02 Infancy*

A REVIEW OF MORTALITY IN PAEDIATRIC PATIENTS ADMITTED WITH SEVERE ACUTE MALNUTRITION (SAM) IN A SEMI-URBAN REGIONAL HOSPITAL IN SOUTH AFRICA

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Background and Aims:

Malnutrition is in the top ten natural causes of death in South African children. The aim of this study was to describe factors related to severe acute malnutrition (SAM) mortality, to guide interventions.

Methods:

A retrospective chart review was conducted on inpatients between 1 to 60 months of age, who died from SAM between 2016 to 2020.

Results:

63 out of 516 SAM inpatients died, with a case fatality rate of 12%. 18% of deaths were in infants 6 months and younger, 73% of whom were formula or mixed fed. 43% of cases were HIV infected and 33% had tuberculosis. Gastroenteritis (70%) was the commonest presentation at the time of admission, followed by sepsis (57%), with culture confirmation in one third of cases. Septic shock was the cause of death in 70% of cases. Pre-hospital contributory factors included unemployment (80%), inappropriate feeding (67%), delay in seeking medical care (63%) and defaulting medical treatment (37%). Non-referral and poor growth monitoring at primary health clinics was evident in 45% and 23% of cases respectively. Nosocomial infection (45%) was the commonest hospital related factor.

Conclusions:

This study confirms that mortality related to malnutrition remains a significant challenge. A multi-level intervention strategy is recommended to address factors related to SAM mortality. Primary and secondary prevention strategies in the pre-hospital setting are important to facilitate earlier identification and rehabilitation of malnourished patients before the development of acute medical complications and septicaemia. Strict adherence to infection prevention and control practices is necessary in the care of hospitalised malnourished patients.

EP043 / #95

E-Poster Topic: AS02 Infancy

BOVINE MILK FAT GLOBULAR MEMBRANE (MFGM): IN VITRO DIGESTION OF LIPIDS AND PROTEINS

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Background and Aims:

Following birth, the maturation of digestive processes has the potential to affect the bioaccessibility of dietary lipophiles, peptides, and amino acids. Bioaccessibility refers to the partitioning of compounds into the aqueous fraction of chyme during digestion in the small intestine (SI) for delivery to the luminal surface of the absorptive epithelium. Simulated gastric and SI digestion of lipids and proteins in MFGM and the partitioning of their products into the bioaccessible fraction were investigated.

Methods:

Bovine MFGM and whey/casein-based infant formula with or without added MFGM were digested using a static, two-phase in vitro digestion model with conditions simulating those in the infant gut. Digestion of proteins was determined by denaturing polyacrylamide gel electrophoresis with quantitative imaging of stained bands. Digestion and the bioaccessibility of lipophilic compounds were monitored by measuring a wide targeted lipid profile using direct infusion-mass spectrometry (DI-MS/MS).

Results:

Proteins in both MFGM and infant formula with and without added MFGM were efficiently digested. Cholesterol esters, diacylglycerides, triacylglycerides, phosphatidylcholines, and phosphatidylethanolamines were readily hydrolyzed resulting in marked increases in the amounts of free fatty acids and lysophospholipids in the bioaccessible fraction. Sphingomyelins and ceramides were resistant to digestion.

Conclusions:

The results suggest efficient digestion of proteins and neutral lipids, cholesterol esters, and phospholipids in MFGM and whey/casein-based infant formulas during transit through the stomach and SI of infants.

EP044 / #125

E-Poster Topic: *AS03 Childhood & Adolescence*

SCREEN TIME AND PICKY EATING BEHAVIORS IN CHINESE TODDLERS AGED 12 TO 36 MONTHS: A CROSS-SECTIONAL STUDY

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Background and Aims:

Screen time was reported to have some impacts on the growth of children. In this study, we investigated the association of screen time with picky eating in Chinese young toddlers.

Methods:

The present research was based on the YI study. The YI study was a national-wide, cross-sectional survey conducted from May 2019 to December 2020. Pregnant and lactating women and children aged under 36 months from ten geographically diverse areas were enrolled. Information on the lifestyles of children and the general characteristics of the household were reported by caregivers. Screen time was defined as time spending on watching television, smartphones, tablets, and other digital devices. Picky eating was reported by caregivers of children. A total of 908 toddlers aged 12 to 36 months with complete information was included in the analysis. Logistic regression models were conducted to investigate the association between screen time and picky eating.

Results:

The proportions of children who never watch screen devices, whose screen time was 1h per day or below, and over 1h were 31.4%, 46.5%, and 22.1%, respectively. Over one-third of the surveyed children were reported to have picky eating behaviors. After adjustment of covariates (age, gender, residential region, and major caregiver), screen time was positively associated with the risk of picky eating (screen time over 1h vs. never watch screen devices: OR 1.54, 95%CI 1.02-2.33, p-trend 0.042).

Conclusions:

Screen time was associated with an elevated risk of picky eating in Chinese toddlers.

EP045 / #126

E-Poster Topic: *AS03 Childhood & Adolescence*

SELECTED DISORDERS OF SOMATIC DEVELOPMENT IN CHILDREN WITH OSTEOGENESIS IMPERFECTA

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Background and Aims:

Osteogenesis imperfecta (OI) is a group of heritable disorders in 90 % caused by mutations in COL1A1 or COL1A2 genes, which are known for encoding the alfa1 and the alfa2 chains of collagen I. Patients are predisposed to suffer from recurrent fractures, bone deformations and disability, however the clinical phenotype has a wide range. This study assessed to present somatic development of patients with OI type I and III.

Methods:

We collected data from anthropometric measurements and laboratory tests of patients with OI (n=108) hospitalised in the Department of Pediatric, Newborn Pathology and Bone Metabolism Diseases, Medical University of Lodz. OI type I was presented by 84 children and type III by 24. Bisphosphonate treatment has been administered in 75 cases. We reported body height, body weight, BMI, Z-SCORE index in densitometry, vitamin D and osteocalcin levels.

Results:

Only 60% of children had normal body weight, 11% - underweight and 28% - overweight. Girls with OI presented lower percentiles of body weight than boys ($p < 0,05$). In children with OI type III we observed lower body height, body weight, higher vitamin D levels and lower osteocalcin levels ($p < 0,05$). Differences in measured BMI of girls vs. boys and OI t. I vs. OI t. III were statistically insignificant.

Conclusions:

Patients with OI are predisposed not only to be underweight, but also overweight and it is independent from gender and type of OI. Dieticians should be included into multidisciplinary specialist teams of professionals focused on OI treatment.

EP046 / #130

E-Poster Topic: AS03 Childhood & Adolescence

INFLUENCE OF EXOGENOUS FACTORS ON VITAMIN D AVAILABILITY IN HEALTHY ADULTS AND CHILDREN WITH BRONCHIAL ASTHMA IN THE RUSSIAN FEDERATION

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Background and Aims:

to study the exogenous factor in the development of vitamin D (vitD) deficiency in patients with bronchial asthma (BA) from different geographic regions of Russia.

Methods:

n=83 patients with BA, 12.5±3.8 years. n=56 control group (GC), 8.3±3.9 years; studied the effect of alimentary vitD and insolation at the level of 25(OH)D in blood serum in three regions of the RF.

Results:

M 25(OH)D was 21.3 ng/ml in the BA group, and 29.6 ng/ml in the GC (p<0.001). The incidence of vitD deficiency was higher in BA patients (56.9%) compared with GC (23.2%) in all regions (p<0.05).

The 25(OH)D level decreased from 36.1 ng/ml in young children to 14.8 ng/ml in BA adolescents from 38.9 ng/ml to 23.5 ng/ml in GC (p<0.05). In summer, the frequency of BA patients with an optimal level of 25(OH)D increased to 77.2% (p<0.05).

Receipt of vitD with food in both groups was low - 6-11% of the physiological norm (10 µg) and there was no correlation with the level of 25(OH)D (p<0.05). Prophylactic dose of vitD in 1000 IU significantly increased the level of 25(OH)D in young children and 2000 U/day in winter and spring, it is required for patients over 4 years old (p<0.05).

Conclusions:

The incidence of deficiency, deficiency and normal 25(OH)D content didn't differ in the three regions. Calcidiol levels decrease with age. Preventive doses of cholecalciferol improve vitD status in the body in summer and autumn, without affecting winter and spring. Dietary intake of vitD does not affect 25(OH)D levels.

EP047 / #155

E-Poster Topic: *AS03 Childhood & Adolescence*

DECENTRALIZED DOUBLE-BLIND RANDOMIZED CONTROL TRIAL ON GALACTO-OLIGOSACCHARIDES SAFETY AND TOLERABILITY TO SUPPORT DIETARY SUGAR INTAKE REDUCTION IN CHILDREN

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Background and Aims:

Reducing sugar content, particularly in products consumed by children, is of paramount importance to reach the WHO recommendations. An innovative enzymatic technology was developed to reduce total sugars in beverages by transforming lactose into the prebiotic galacto-oligosaccharides (GOS) fibers. Confirmation of the gastro-intestinal (GI) tolerability of high daily intakes of GOS (up to 10 g/day) was required in children aged from 5 to 10 years.

Methods:

Double-blind randomized control trial with 60 healthy children (5-10 years old) assigned to one of 4 parallel arms (0g GOS (control) / 5g / 7g / 10g a day). The study product, a hydrolyzed partially skimmed milk powder to be reconstituted in lukewarm water, was to be consumed for 7 consecutive days. Daily GI symptoms (Likert scale), stool frequency and consistency, as well as adverse events were remotely reported by the subjects via electronic visual-aided questionnaires.

Results:

The GOS-containing product was safe and well tolerated. A slightly higher likelihood to experience bloating and increase of stool frequency compared to the control group was observed in the 5g/day and the 10g/day groups, respectively. This is not considered as clinically meaningful and doesn't show any specific trend with the incremental GOS daily dose. The fully digital data collection enabled a high product compliance (means>92%) and subject retention amid the Covid19 outbreak.

Conclusions:

The consumption of GOS up to 10g/day is safe and well tolerated in children of 5-10 years old. Our decentralized and subject-centric operational design optimized data collected and children compliance.

EP048 / #156

E-Poster Topic: *AS03 Childhood & Adolescence*

DOUBLE BURDEN OF MALNUTRITION AMONG TODDLERS (1 TO 3 YEARS) ATTENDING DAY CARE CENTERS IN A SOUTH AFRICAN URBAN SETTING.

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Background and Aims:

Toddlerhood (1–3 years) is characterised by crucial physical and neurological development, the establishment of lasting food preferences and eating habits. The Eastern Cape Province is one of the poorest areas in South Africa, but very little research has focussed on the nutritional status of toddlers in this area of South Africa in the context of food security and the nutrition transition.

Methods:

A descriptive study was conducted in 2015, including a stratified convenience sample of 55 toddlers at six consenting day care centers in a low middle class neighbourhood of Newton Park, Nelson Mandela Bay. Socio-demographic, food security (CHIPP index) and dietary intake data (24h-recall) were recorded via questionnaires administered by semi-structured interviews conducted with the primary caregivers, and anthropometry was measured.

Results:

Stunting affected 7.3% and overweight/obesity, 9.1% of the toddlers. About 20% had a low level of food security level, and level of food security was significantly ($p < .05$) inversely associated with weight-for-age and length/height-for-age. Most participants consumed energy-dense diets of refined carbohydrates, high fat and low fibre sources, with excessive consumption of added fat, sugars and processed food, in detriment of fruit, vegetables, legumes, whole grain starches and dairy. Additionally, 94.5% of participants had inadequate dietary diversity scores, suggesting a trend of energy-dense foods, high in added sugar and or fat, like cookies and sugar-sweetened beverages (SSB), taking preference over nutrient-dense sources, such as fruit, vegetables and wholegrain starches.

Conclusions:

In this population of toddlers, nutrition transition and food insecurity were associated with the double burden of malnutrition.

EP049 / #170

E-Poster Topic: *AS03 Childhood & Adolescence*

PICKY EATING STATUS OF CHINESE TODDLERS IN TEN CITIES AND ITS ASSOCIATION WITH Z SCORES FOR GROWTH AND DEVELOPMENT: A CROSS-SECTIONAL STUDY

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Background and Aims:

Previous studies have shown that picky eating behavior may affect children's growth and development, but limited attention has been paid to picky eaters among Chinese toddlers. This study sought to assess the prevalence of picky eating among Chinese children aged 12-36 months and explore its correlation with growth and development.

Methods:

923 children from 10 cities in China were included using multi-stage stratified sampling. Family demographic information and self-reported picky eating behavior were collected through questionnaire, and toddlers' length, weight, head and upper arm circumference was measured to calculate the corresponding Z-score. Chi-square test and unconditional logistic regression were used to analyze the influencing factors of picky eating. Multiple linear regression was used to investigate the relationship between picky eating and Z-scores of growth and development.

Results:

The prevalence of picky eating reported by parents was 36.0%. 47.0% of picky eaters did not like to eat vegetables, followed by meat and beans. Picky eating was correlated with age, city, birth order and father's education level ($p < 0.05$). Picky eaters had a 0.156 z-score lower in weight for age (95%CI: -0.298, -0.013, $p = 0.033$), a 0.155 z-score lower in BMI for age (95%CI: -0.301, -0.010, $p = 0.036$) and a 0.279 z-score lower in head circumference for age (95%CI: -0.454, -0.104, $p = 0.002$) when adjusted gender, age, city, parents' educational level and family monthly income.

Conclusions:

Picky eating seemed to be associated with region, age, father's educational level and birth order. And it may have negative effects on growth and development in Chinese toddlers.

EP050 / #179

E-Poster Topic: *AS03 Childhood & Adolescence*

SUPPORTING THE CAREGIVER: EVALUATION OF A NOVEL EDUCATION MODEL FOR PARENTS OF CHILDREN WITH MEDICAL COMPLEXITY

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Background and Aims:

Hospital-to-home transition for children with medical technology remains a source of caregiver anxiety. Historically, training was non-centralized and teaching content varied with clinician experience. The Connected Care Program provides centralized, standardized caregiver teaching for children being discharged home with new medical technology (enteral tube feeding, tracheostomy care, suctioning). This abstract evaluates a new caregiver education program with a prospective descriptive survey.

Methods:

Caregivers of children who received new medical technology were recruited from a large paediatric centre between February 2018-2019. Caregivers completed a Likert Scale survey to evaluate the centralized discharge education program.

Results:

Caregivers (n=152/180, 84.4% response rate) were trained to use nasogastric tubes (n=54), gastrostomy/gastro-jejunostomy/jejunostomy tubes (n=55), enteral feeding (n=48), subcutaneous injections (n=15), central venous lines (n=18), oxygen saturation monitoring (n=6), tracheostomy care (n=7), and other technologies (n=5).

Majority of respondents strongly agreed with: one-on-one teaching sessions were beneficial (96.1%, $\mu=4.88\pm0.65$); sessions provided opportunities to ask homecare-related questions (93.9%, $\mu=4.86\pm0.67$); sessions were an appropriate time length (87.8%, $\mu=4.88\pm0.68$). However, a smaller proportion strongly agreed with: practicing with mannequins and equipment was effective (85.3%, $\mu=4.76\pm0.74$); resources were useful to learning (85.3%, $\mu=4.75\pm0.75$); and the space was distraction-free (79.5%, $\mu=4.76\pm0.76$).

Written feedback was provided by 39 caregivers (25.7%). Consistent themes included: increasing room size (18%), more realistic environment (13%), and options to train with the patient rather than models (5%).

Conclusions:

Overall, caregivers valued one-on-one teaching and the opportunity to ask homecare-related questions. Further improvements included incorporating a distraction-free, spacious, and realistic learning environment. This informed a novel home-simulated education room for which future evaluation will follow.

EP051 / #183

E-Poster Topic: *AS03 Childhood & Adolescence*

ELECTROLYTE IMBALANCE IN CHILDREN UNDER FIVE WITH SEVERE ACUTE MALNUTRITION AT A SINGLE TERTIARY CARE HOSPITAL

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Background and Aims:

Severe acute malnutrition (SAM) remains to be a burden in developing countries. Children with SAM should be assessed with a full clinical and laboratory examination to confirm whether they have any general danger signs or medical complications. This current study investigates the profile of serum electrolytes in children with SAM.

Methods:

A retrospective study with a cross-sectional approach was conducted in children under five with SAM. Severe acute malnutrition was considered according to the WHO criteria (a weight-for-height/length < -3 standard deviation of the WHO growth standard or a mid-upper arm circumference < 115 mm (in children > 6 months) or have bilateral edema). The normal reference range of serum sodium, potassium, calcium, and chloride was 136-145 mEq/L, 3.5-5.1 mEq/L, 9.2-11.0 mEq/L, and 94-110 mEq/L, respectively as per the laboratory standard. Hyponatremia, hypokalemia, hypocalcemia, and hypochloremia were considered if less than the normal reference range.

Results:

A total of 94 children were fulfill the study criteria, 56 boys (59.6%) and 38 girls (40.4%), 22.3% less than 6 months and 77.7% older than 6 months. Hyponatremia, hypokalemia, hypocalcemia, and hypochloremia were 69.1%, 26.6%, 62.8%, and 46.8%, respectively. Hypocalcemia in children with SAM less than 6 months old and more than 6 months old was 15.3% and 84.7%, respectively (OR: 0.34; 95%CI: 0.12 – 0.93; p = 0.032).

Conclusions:

Children under five with severe acute malnutrition mostly have hyponatremia and hypocalcemia. Hypocalcemia was significantly less prevalent in children with SAM less than 6 months old.

EP052 / #187

E-Poster Topic: *AS03 Childhood & Adolescence*

ASSOCIATION BETWEEN THE SCORES OF THE CHILDREN'S EATING SCALE STYLES AND DIETARY PATTERNS ON PRESCHOOL AGE CHILDREN WITH STUNTING

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Background and Aims:

Poor linear growth or stunting [HAZ < -2], still the burden in Indonesia. There are influences of genetic and environmental factors on childhood eating habits. The variations in traits are related to appetite during childhood. To determine the association between the scores of the children's eating scale styles and dietary patterns on preschool-age children with stunting.

Methods:

A cross-sectional study base on community urban areas in Indonesia, from January 2018 to June 2019. Seventy preschool children of stunting retrospective cohort studies, ranging 4 years 10 months to 5 years 9 months presenting with stunting were studied. Subjects were obtained by total sampling. All of the subjects were in community-based settings. Data collected from history physical examination, children's height, and weight were measured. Children Eating Behaviour Questionnaire (CEBQ) was designed to assess children's eating scale styles and it is a parent-report measure. The dietary patterns use the Child Feeding Questionnaire.

Results:

The proportion of stunting in preschool children with a history of stunting was 44.3% and was found in more boys. Parents completed the CEBQ to indicate their child's eating style for three food approach and four food avoidant sub-scales. The results showed that the mean score for the food approach was 0.37 (0.00-0.93) and food avoidant' was 0.31 (0.52-1.05), respectively. The parenting style of dietary patterns was 0.58 (0.16 1.00). Association CEBQ sub-scales and dietary patterns were not significantly associated with stunting.

Conclusions:

There were children's eating scale styles and dietary patterns no significantly associated with stunting.

EP053 / #199

E-Poster Topic: AS03 Childhood & Adolescence

INFLUENCE OF ENDOGENOUS AND EXOGENOUS FACTORS ON VITAMIN D STATUS IN HEALTHY CHILDREN AND CHILDREN WITH CYSTIC FIBROSIS IN THE RUSSIAN FEDERATION

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Background and Aims:

to study endogenous and exogenous factors of vit.D deficiency in children with cystic fibrosis (cwCF) in three regions located in different geographical zones of the Russia.

Methods:

We conducted blood 25(OH)D level analysis 283 cwCF (7.5±4.8 y.o.) and 331 healthy children (GC) (8.3±3.9 y.o.). Also we analyzed the influence of alimentary vitamin D (food, cholecalciferol supplementation), the number of sunny days per year in different regions

Results:

a normal level of 25(OH)D was observed in 49.3%, insufficiency in 27.3%, deficiency in 23.4% in cwCF and in GC 45.5%, 30.1%, 24.4% respectively. The level of 25(OH)D becomes lower with age: in the GC it decreases from 41.4 ng/ml at an early age to 26.9 ng/ml in the adolescents ($p < 0.001$), in the cwCF – from 35.7ng/ml to 24.7 ng/ml respectively ($p < 0.001$). Geographical region of residence, food intake (5-10% of the physiological norm (10 mcg)) did not influence the level of 25(OH)D. In the summer level of 25(OH)D was significantly higher than 36.0 ng/ml ($p < 0.05$). It was shown that a dose of cholecalciferol $\geq 1,000$ IU per day can achieve a normal level of 25(OH)D in GC, for cwCF a dose of cholecalciferol should be $\geq 2,000$ IU per day.

Conclusions:

Exogenous factors (time of year - spring, winter and autumn, prophylactic administration of cholecalciferol), as well as endogenous (age > 4 y.o., especially adolescents), play a determining role in the development of vit.D deficiency. Recommended dynamic control level of 25(OH)D - 4 times in a year for children > 4 y.o., 1 time for children > 4 y.o.

EP054 / #203

E-Poster Topic: *AS03 Childhood & Adolescence*

THE ROLE OF EXOGENOUS FACTORS IN VITAMIN D AVAILABILITY IN HEALTHY ADULTS AND CHILDREN WITH JUVENILE RHEUMATOID ARTHRITIS IN THE RUSSIAN FEDERATION

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Background and Aims:

to study endogenous and exogenous factors of vitamin D deficiency in patients with juvenile rheumatoid arthritis (JRA) from three geographical regions of Russia.

Methods:

n=156 patients with JRA, 5.5±2.8 years, n=331 control group (GC), 6.3±3.9 years; we studied the effect of alimentary vitamin D (food and cholecalciferol supplements), insolation, age, degree of disease activity on the level of 25(OH)D in blood serum; in three regions of the Russia with different levels of insolation

Results:

Normal level of 25(OH)D was observed in 8%, insufficiency in 21 %, deficiency was detected in 71% in the JRA, in the GC 49%, 30%, 21%, respectively (p<0.05). M (25(OH)D)=23.0 ng/ml in JRA, M (25(OH)D)=27.2 ng/ml in the GC (p<0.05). Level 25(OH)D depended on the degree of activity of the autoimmune process, the season (in the summer, 55% had a normal level) and did not depend on the age in the JRA. In the GC, it decreased from 35.6 ng/ml to 24.1 ng/ml. Geographical region of residence, food intake (6-13% of the physiological norm (10 mcg)) did not influence the level of 25(OH)D. At a dose of 500-1,000 IU/day the frequency of vit.D deficiency with JRA is 3.5 times higher than in the GC; at more than 1000 IU/day the frequency of deficiency decreased

Conclusions:

Normal level 25(OH)D was more often observed in children with the 1st degree of activity in the JRA. A prophylactic dose of 1,000 IU / day was sufficient in the summer, while in other seasons in the JRA, 2,000 IU or higher was required.

EP055 / #216

E-Poster Topic: *AS03 Childhood & Adolescence*

ATOPIC PREDISPOSITION AND DEVELOPMENTAL PROFILE OF CHILDREN IN EARLY CHILDHOOD IN BULGARIA

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Background and Aims:

Atopy is an increasing problem worldwide. There is emerging literature about the association between allergy and child cognitive development.

Aim: To assess the possible effect of allergy predisposition and type of allergy on mental development in early childhood.

Methods:

A cohort study was conducted in Bulgaria in the period 2017-2020. A total of 120 children born term, normal birth weight from atopic families, 13 to 31 months (24.0 ± 3.9 months)- 54 girls (45%) and 66 boys (55%) were included. Type of allergy in children till the end of the study and developmental profile was evaluated with a validated DP-3 questionnaire with a scoring system, including physical development (PD), adaptive behaviour (AB), communication (C), cognitive (CD), socio-emotional (SE) and general development (GD).

Results:

50(41.7%) children developed allergy till the end of the period. No significant difference in the developmental profile scores was found between those with and without allergy, but a low significant difference for the mean scores for PD, CD, SE and GD (Student t-test, $p < 0.05$) in children with and without food-induced urticaria. Comparing the calculated developmental scores with a range validated in Bulgaria- age period 24-30 months (one-sample T-test, $p < 0.05$), there was a significantly lower score in children- both genders from families with atopy in all developmental areas.

Conclusions:

We show that the early childhood developmental profile of children from atopic families might be affected by the early development of some types of allergy, as well as children from families with atopy have a lower score for their mental development compared with the general population.

EP056 / #217

E-Poster Topic: *AS03 Childhood & Adolescence*

OVERCOMING CHALLENGES IN AN ONLINE 24H FOOD RECALL FOR PARENTS OF YOUNG CHILDREN: FINDINGS FROM A USABILITY STUDY

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Background and Aims:

The 24h food recall has been recognized as a successful method to capture individual variability in children's food intake during nutritional interventions; nevertheless, it can be challenging and burdensome for parents. The emerging technologies can help develop more friendly dietary assessment systems adapted according to parents' daily routines and children's food intake features. This work aimed to describe the development of a new online 24h food recall (SmartKidsDiet24) and the first findings of a usability study with a Portuguese sample of parents of young children.

Methods:

To overcome some earlier reported issues in 24h food recalls, we included some features: i) the possibility to report children's food intake in a progressive recall, as the meals are taking place, ii) guidance in registering foods in the meals/snacks and through food groups, iii) use of the child's hand as a portion size tool to estimate the food quantities. The parents' experience with the app regarding parents' preferences and difficulties when performing the food recall was assessed through semi-structured interviews. We also analyzed data about the time expended in food reports and the number of times parents accessed the app to report the child's daily food intake.

Results:

Nineteen parents are currently testing the usability of the measure, included in a pilot study of the SmartFeeding4Kids program, with a total of 38 days of food reports.

Conclusions:

The results found can help find solutions to make food reports easier and adaptable to parents' contexts while maintaining the measure's validity.

EP057 / #218

E-Poster Topic: *AS03 Childhood & Adolescence*

DO CHILDCARE TEACHERS RATE PRESCHOOL CHILDREN'S WEIGHT STATUS MORE ACCURATELY THAN THEIR PARENTS DO? A COMPARATIVE ANALYSIS

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Background and Aims:

Parental perception of the child's weight has been recognized as a determinant of the parents' involvement in positive changes in children's eating habits. Considering that children spend much of their time in childcare centers and that teachers have an important role in promoting healthy eating habits and in identifying problems in children's development, it is important to understand the extent to which educators correctly recognize the child's weight. We aimed to determine how accurate is the childcare teacher's and parent's evaluation of their preschool child's weight and how the caregivers' perception of the child's weight varied according to child's BMI nutritional status.

Methods:

A sample of 319 preschools (2 to 6 years old) children was evaluated by both caregivers (319 parents and 33 childcare teachers) about their weight. Children's weight and height were assessed, to determine the BMI percentile and nutritional status.

Results:

Most healthy-weight children were accurately evaluated by their caregivers about weight. The incorrect assessments were mainly underestimations of the child's weight regarding overweight children. However, overweight children were differently assessed about their weight by childcare teachers and parents.

Conclusions:

Although teachers had similar issues to parents regarding the correct evaluation of the child's weight, their evaluation regarding overweight children is more accurate. Training about children's healthy development and correct interpretation of the physical cues regarding childhood under or overweight can help teachers to develop more appropriate actions to promote a child's healthy diet and improve parental guidance about child's health and feeding.

EP058 / #220

E-Poster Topic: *AS03 Childhood & Adolescence*

QUALITY OF LIFE IN CHILDREN AND ADOLESCENTS WITH COELIAC DISEASE EVALUATED BY AUQEI AND CD-DUX QUESTIONNAIRES

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Background and Aims:

Observational cross-sectional study which aims to evaluate the quality of life(QoL) of children and adolescents with coeliac disease through the AUQEI(generic questionnaire) and CD-DUX(specific questionnaire for coeliac), to analyze basic knowledge regarding the gluten-free diet and to identify the habit of reading food product labels by them.

Methods:

21 patients from the paediatric gastroenterology outpatient clinic of the University Hospital, UFRN, in Natal-Brazil, from 4 to 18 years old with confirmed diagnosis (ESPGHAN criteria) of coeliac disease answered a questionnaire about basic dietary knowledge when over 8 years old (N=15); AUQEI [4-12 years old (N=11)] and CD-DUX [8 to 18 years old (N=16)]. QoL was analyzed through both instruments and their domains, as well as the content of pre-questionnaire responses.

Results:

60% of patients were unaware of at least one of the groups to avoid in the diet and only 46.6% always used to read food product labels. Good QoL was identified in all coeliac patients through AUQEI, but with greater damage to the "autonomy" and "function" domains. Through CD-DUX, none showed QoL "very good" and 25% "very poor-poor". Regarding the domains, "having CD" was the most affected, followed by "diet" and "communication".

Conclusions:

There is low knowledge about food groups to be excluded from the diet and unsatisfactory frequency of reading of food product labels by coeliac children and adolescents. Coeliac QoL presents itself as good through AUQEI. Through CD-DUX, QoL is unsatisfactory, with greater interference in the "having CD" domain, mainly influenced by the restrictive factors coming from the gluten-free diet.

EP059 / #225

E-Poster Topic: AS03 Childhood & Adolescence

FEEDING PATTERNS AND NUTRIENT INADEQUACY OF 4 AND 5 YEAR OLD (Y.O.) BRAZILIAN CHILDREN

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Background and Aims:

Early childhood is an important stage of growth and development, driven by adequate nutrient intakes. This study describes the dietary patterns and nutrient inadequacy of young Brazilian children.

Methods:

The study population included 4 and 5y.o.(n=228) from the Brazilian Kids Nutrition and Health Survey (KNHS), a cross-sectional, representative dietary survey (n=983). Dietary intake data were collected using 24hour recalls. Food group consumption and nutrient inadequacies were calculated.

Results:

Fruit and vegetables were consumed by approximately half of the population. Around 85% of children consumed milk/milk products, while sweets/desserts/sweetened beverages were consumed by the majority. A high prevalence of inadequate vitamin D, calcium, choline and vitamin E intakes was observed.

	4y.o.(n=116)		5y.o.(n=112)	
	Mean/capita(g)	%consumption	Mean/capita(g)	%consumption
Fruit/100% juice	141.0	52.6	146.0	45.5
Grains/grain products	66.6	99.1	73.7	100.0
Meats/other protein sources	49.1	93.1	57.4	96.4
Milk/milk products	137.2	85.3	150.5	87.5
Mixed dishes	118.4	38.8	126.9	46.4
Savoury snacks	38.7	25.0	27.8	16.1
Sweets/desserts/sweetened beverages	89.6	96.6	93.6	100.0
Vegetables	41.4	47.4	28.2	49.1

Table 2. Micronutrient inadequacy

% inadequacy										
	Vitamin A	Folate	Vitamin C	Vitamin D	Vitamin E	Choline	Calcium	Magnesium	Iron	Zinc
4y.o.	21.5	21.6	32.8	92.2	48.3	70.7	69.0	12.9	25.9	47.4
5y.o.	41.1	9.8	39.3	96.4	43.7	61.6	61.6	3.6	12.5	36.6

Conclusions:

Fruit and vegetable consumption should be increased, and sweet consumption decreased in this population. This data may support the development of public health strategies to improve diet quality and nutrient adequacy and bioavailability, for healthy growth and development in early childhood.

EP060 / #243

E-Poster Topic: *AS03 Childhood & Adolescence*

POTENTIAL ASSOCIATIONS OF THE COVID-19 PANDEMIC AND SOCIETAL CONTROL MEASURES ON CHILDREN AND ADOLESCENTS' PHYSICAL ACTIVITY AND DIET

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Background and Aims:

The ongoing Covid-19 pandemic is primarily a health emergency and global threat. Authorities requested the population to stay at home as an attempt to prevent further contamination. Under these circumstances, a number of physical and health outcomes became a concern. To present the results from a scoping review on how the Covid-19 pandemic might be associated to children's and adolescents' health and lifestyle, focusing on the lifestyle results (physical activity and diet).

Methods:

The literature search was performed in four scientific databases (PubMed, PsycINFO, Web of Science and CINHAL) and two Swedish databases (SwePub and SveMed+) on the 23rd of September 2020. An additional search was performed on November 6th, 2020.

Results:

Most of the studies on physical activity reported a decrease in physical activity levels (n=13/16). Some others explored predictors of changes in the levels of physical activity. The studies on the potential associations with dietary changes (n=8) reveal conflicting findings: some studies reported a potential positive association with diet during Covid-19 (decline in fast food consumption, families spending more time cooking and eating together and increased intake of fruits and vegetables) other studies reported potential negative associations (decreased intake of fruits/vegetables, increased intake of snack foods, desserts/sweets and non-perishable processed foods).

Conclusions:

Findings from this review highlight the negative effects of the Covid-19 pandemic and societal control measures on the levels of physical activity of children and adolescents and the mixed effects on their diet.

EP061 / #25

E-Poster Topic: *AS03 Childhood & Adolescence*

EFFECTS OF THE CONSUMPTION OF BANANA FLOUR PORRIDGE IN THE NUTRITIONAL STATUS OF STUDENTS OF THE COMPLETE PRIMARY SCHOOL OF MUTSEKWÁ, MAPUTO CITY PROVINCE, MOZAMBIQUE

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Background and Aims:

The existence of 'hunger spots' in the municipal district of Katembe (Maputo Province) along with the large availability of bananas in Mozambique at a relatively low cost, were aspects that weighed for the implementation of the Sergio Gago Foundation 'Banana Flour Porridge Supplementation Initiative'. We assessed the effects of banana flour porridge consumption on the nutritional status of students enrolled at Complete Primary School of Mutsekwá.

Methods:

The nutritional assessment was conducted from October to November 2017 on 65 students aged 6 to 14 years old. Measurements (weight, height, BMI, arm circumference) were made at the beginning of the study, at 15 days, and at 30 days after the initiative was implemented.

Results:

In the first measurement made, 62.5% of children aged 6 to 9 years had an adequate weight, 3.1% were severely malnourished and 3.1% were overweight/obese, while in children aged 10 to 14 years it was found that 57.6% were adequate weight and 3.0% were overweight/obese. After the administration of the banana flour porridge, an increase in the body mass index was observed in the second anthropometric measurement in children from 6 to 14 years of age who had adequate weight, 21.9 percentage points for the 6-9-year-old age group and 30.3 percentage point for the 10-14-year-old age group.

Conclusions:

The implementation of initiatives such as the reinforcement of the school snack through the consumption of banana flour porridge in school-age children can contribute to the improvement of the nutritional status in children with an adequate body mass index.

EP062 / #267

E-Poster Topic: *AS03 Childhood & Adolescence*

THE NUTRITIONAL STATUS OF CHILDREN LIVING IN INSTITUTIONALIZED CARE WITH CONTROL CHARTS AND FUNNEL PLOTS FOR PROGRAM MONITORING.

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Background and Aims:

Upward of 9.42 million children live within institutionalized care worldwide.

This retrospective analysis aimed to describe the nutrition-related epidemiology of children living within institutionalized care and explore the use of control charts and funnel plots for program monitoring.

Methods:

Records from 2,926 children, 0-18 years old in 6 countries were analyzed.

Data collected included information on age, sex, anthropometry, disability status and hemoglobin. Shewhart control charts and funnel plots were used to explore inter-site and over-time variations in nutritional status.

Results:

Baseline screening:

- Disabilities: 739 (25.3%)
- Low birth weight: 514 (57.5%)
- Prematurity: 294 (42.2%)
- Anemia: 717 (28.8%)
- Wasting: 212 (12.6%)
- Stunting: 1048 (37.3%)

- Underweight: 788 (34.1%)
- Overweight or obese: 135 (12%)
- Small head circumference: 339 (31%)
- Children with disabilities had higher prevalence of malnutrition compared to counterparts without disabilities. All children had higher malnutrition when compared to global prevalence.
- There was inter-site variation.
- Funnel plots show sites with malnutrition prevalence outside expected limits for this specific population taking into consideration natural variation. Control charts highlight changes in site mean z-scores over time in relation to population control limits.

Conclusions:

- Malnutrition is prevalent among children living in institutional-based care, including stunting, underweight, anemia and wasting.
- Underlying risk factors are more common than global prevalence.
- When exploring inter-site variations in malnutrition prevalence, disability should be accounted for by using disability-specific control charts.
- Control charts and funnel plots present useful data on sites outside of control limits, taking natural variation into account.

EP063 / #273

E-Poster Topic: *AS03 Childhood & Adolescence*

CLINICAL LONGITUDINAL/CROSS-SECTIONAL DUAL USE GROWTH CHARTS FOR VENEZUELAN

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Background and Aims:

Background: Venezuelan boys and girls present an early "tempo" in their growth and development and are shorter and lighter than the anglosaxon population from puberty onwards. International growth references can lead to errors in diagnosis, especially in clinical practice. Aims: to establish dual use (cross-sectional and velocity charts) in height and weight conditioned to the tempo of growth.

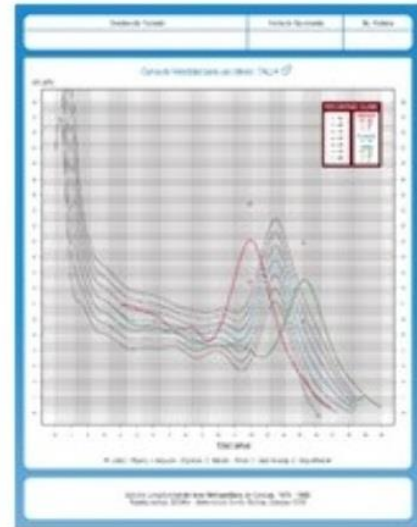
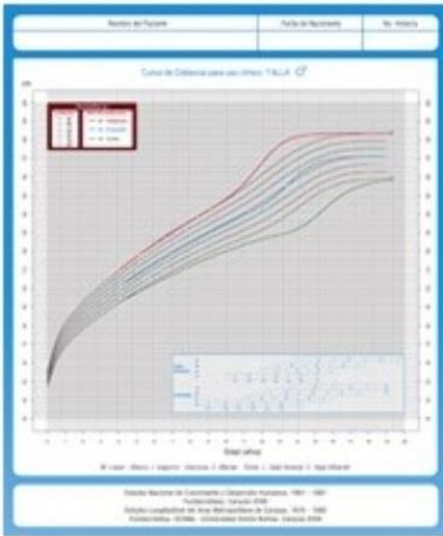
Methods:

Methods and Results: Construction of Velocity Curves from The Caracas Longitudinal Study (CLS 1976 - 1982) Each curve adjusted by the Cubic Spline Function, aligned according to Age at PHV (APHV). Centiles were calculated. Early, average and late maturers characterized by APHV. Construction of the Integrated Growth Curve: The dynamics of the CLS data plus the amplitude of the centile distribution of the National Growth Development Study (NGDS 1981-1987) Social Strata I-IV was considered. Median of Early, Average and Late Maturers constructed as the integral of the 50th centile velocity curve, conditioned to values of the median of NGDS (strata I-IV) at age 18. 97th centile of early maturers and 3rd centile of late maturers calculated equal to the distance between percentiles 50 and 03 of NGDS

Results:

Comprehensive Cross -Sectional and Longitudinal / Growth Charts for Clinical Use that include "tempo" (early, average, late maturers) are presented for diagnosis and follow-

up.



Conclusions:

Conclusions: Clinical Dual Use Growth Charts are recommended for an adequate clinical diagnosis.

EP064 / #277

E-Poster Topic: *AS03 Childhood & Adolescence*

FEATURES OF PHYSICAL DEVELOPMENT OF CHILDREN 7-18 YEARS OLD IN THE ARCTIC ZONE OF THE RUSSIAN FEDERATION, DEPENDING ON THE CHARACTERISTICS OF NUTRITION

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Background and Aims:

There are extremely cold subarctic continental climate with short summers and long cold winters in the North parts of Russia. Surely, climate and ethnic dietary habits affect nutritional habits and physical development of children who live there.

Methods:

932 children of age from 7 to 18 years were examined. The assessment of the physical development of children and their food consumption was carried out in two groups: indigenous people (Yakuts) - 673 children and non-indigenous people (newcomers) - 259 children.

Results:

56.9% of the indigenous children and 51.4% of the non-indigenous population had normal physical development; overweight and obesity - 17% and 9.3% of Yakuts and 18.9% and 13.6% of children of other ethnicity respectively. The nutritional characteristics of children were identified depending on ethnicity. Climatic conditions determine the traditional type of diet of the indigenous people of Yakutia - protein and fat. 31% of yakut children and 30% of children of newcomers consume fish at least once a week. Meat is used at least 5 times a week by 80% of the children of the indigenous population and 50% of the newcomer population. Beef and pork are consumed by 85-90%, poultry - 50-60%, foal - 50% of indigenous and 20% of newcomers; venison - 10-13% of children. Indigenous people are significantly more likely to consume sources of protein and traditional products.

Conclusions:

The prevalence of obesity and overweight in children 7-18 years old among the newcomer population of Yakutia is higher than in this age group of children of the indigenous population.

EP065 / #286

E-Poster Topic: *AS03 Childhood & Adolescence*

DOES NUMBER OF SCHOOL MEALS AFFECT OVERALL DIETARY INTAKE AND BODY MASS INDEX IN PRIMARY SCHOOL CHILDREN?

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Background and Aims:

School meals (SMs) provide an important contribution to overall nutrition. Schools' food service in Croatia offers up to three meals (breakfast, lunch and snack) out of which parents choose how many SMs the child will consume. The aim was to assess whether the number of SMs affects the overall dietary intake and are associated with body mass index (BMI) in primary school children.

Methods:

Dietary record for two non-consecutive weekdays was used to estimate dietary intake in children (n=156; 50% girls) aged 7-8 years from elementary schools in Zagreb City. Daily energy and nutrient intake were compared with National guidelines for SMs for children in primary schools. Children were divided in 4 groups according to the number of consumed meals provided by school food service: 0 meal (27%), 1 meal (33%), 2 meals (12%) and 3 meals (28%).

Results:

Daily energy intake did not differ between groups. Children who ate up to 3 SMs, after adjustment for energy intake and gender, had higher intake of fat (p=0.001) and carbohydrates (p<0.001), but lower intake of fibre (p=0.016) compared with children who ate one SM or none. More than 60% of children had inadequate intake of energy and macronutrients according to national guidelines in all 4 groups. No association was observed between number of consumed SMs and BMI-age Z-score.

Conclusions:

SMs do not affect the overall dietary intake nor BMI due to their lower nutritional quality. Both parents and the school system should provide more nutritious meals to improve the overall diet quality in children.

EP066 / #293

E-Poster Topic: *AS03 Childhood & Adolescence*

VIETNAMESE PARENTS' SATISFACTION WITH GROWTH AND HEALTH OUTCOMES WHEN PROVIDING NUTRITIONAL BEVERAGES TO CHILDREN AT RISK OF UNDERNUTRITION

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Background and Aims:

Good nutrition is key to achieve optimal growth and health yet pediatric undernutrition persists worldwide. When Vietnamese parents have concerns about their child's growth, they commonly choose to supplement the child's diet with a nutritional beverage. Results of numerous clinical studies have shown that feeding a specialized energy- and nutrient-dense pediatric nutritional supplement (PNS) can promote growth and other outcomes in undernourished children.

In this real-world study in Vietnam, we sought parents' perspectives on their child's growth and health outcomes when nutritional beverage products were given to supplement the diet and counter risk of undernutrition.

Methods:

This was a cross-sectional study involved 1200 Vietnamese children who were reported by their parents to be at-risk of undernutrition and supplemented with nutritional beverages (PNS [n=600] or other nutritional beverages [n=600]).

Results:

Among parents who gave their children this specialized PNS, approximately 90% were "satisfied/agreed" that it helped promote their child's growth and other health outcomes. Specifically, on questions regarding their child's growth, immunity, physical activity, and eating behaviors, parents who fed it were 1.2 to 1.5 times as likely to give a rating of "very satisfied/strongly agree" than were parents who fed other nutritional beverages ($P < 0.05$).

Conclusions:

Parents' high ratings for satisfaction with this specialized PNS and its ability to promote growth and health are consistent with its efficacy shown in clinical studies. With support from both parents and healthcare professionals, daily consumption of such PNS product is recognized to have high value as a way to promote growth and health of an undernourished child.

EP067 / #294

E-Poster Topic: *AS03 Childhood & Adolescence*

PLASMA VITAMIN B12 CONCENTRATION IS POSITIVELY ASSOCIATED WITH MOTOR AND COGNITIVE DEVELOPMENT IN HEALTHY DANISH 3-YEAR-OLD CHILDREN

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Background and Aims:

Adequate B12 and folate concentrations are essential for neural development in early childhood. We investigated the relation between B12 and folate at 9 and 36 months and psychomotor development at 36 months.

Methods:

Subjects from the cohorts SKOT-I and SKOT-II with plasma B12 measurement and completed Ages and Stages Questionnaire (ASQ-3) at 36 months were included (n=280). Dietary intake and plasma B12 and folate concentrations were collected at 9 and 36 months, and ASQ-3 was assessed at 36 months. Associations between B12 and folate and ASQ-3 were analyzed by multiple linear and logistic regression models. Associations between diet and plasma B12 were also investigated.

Results:

No infants had insufficient B12 concentrations (<148 pmol/L). B12 at 36 month was positively associated with total ASQ-3 score ($p=0.019$) which remained significant after adjustment for potential confounders ($p=0.043$). The logistic regression model showed that per 100 pmol/L increase in B12 at 36 months the odds (OR(CI)) of not being in the lower quartile of total ASQ-3 was 1.17((1.05;1.30), $p=0.004$). B12 at 9 month or folate at any time point was not associated with total ASQ-3. Intake of milk products was associated with B12 at 36 months ($p=0.003$) and showed a trend at 9 months ($p=0.069$) whereas intake of meat products was not associated with B12.

Conclusions:

In healthy children with B12 above 148 pmol/L, B12 was positively related to psychomotor development at 3 years indicating that the impact of having a marginally low B12 status on psychomotor development in well-nourished children should be examined further.

EP068 / #296

E-Poster Topic: *AS03 Childhood & Adolescence*

VITAMIN D STATUS AND SEVERAL FACTORS ASSOCIATED WITH CHILDHOOD PNEUMONIA AT THE THIRD LEVEL HOSPITAL

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Background and Aims:

Vitamin D plays an important role in maintaining the immunity of the upper and lower respiratory system and low levels are associated with the incidence of upper and lower respiratory tract infections. This study aims to determine factors associated with vitamin D status in childhood pneumonia at pediatric ward M. Djamil hospital.

Methods:

A descriptive cross sectional study was conducted on children who were diagnosed and treated as the pneumonia at pediatric ward Dr. M. Djamil, a third level hospital in Padang, Indonesia, during January 2019 - December 2020. We collected the demographic, clinical, chest X-ray and laboratory results and then examine of vitamin D levels as 25(OH)D from peripheral blood. Data were analyzed using chi-squared methods.

Results:

Among 56 children with pneumonia during the period, most of them was under-five 85.7% and 83.6% not complete the immunization. Levels of vitamin D sufficiency were found to be 58.9%, insufficiency 16.1% and deficiency 25%. There were no relationship between nutritional status, breastfeeding, age and history of prematurity with vitamin D status in pediatric pneumonia ($p > 0.05$).

Conclusions:

Vitamin D status found in this study was mostly normal and there was no relationship between nutritional status, breast milk, age and history of prematurity with vitamin D status in pediatric pneumonia.

EP069 / #298

E-Poster Topic: *AS03 Childhood & Adolescence*

SCREENING FOR RISK OF MALNUTRITION AND HOSPITAL MALNUTRITION IN DEPARTMENT OF CHILD HEALTH DR. M. DJAMIL HOSPITAL, PADANG

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Background and Aims:

Children requiring hospitalization are at higher risk for malnutrition, especially in undernourished children. Pediatric nutrition screening helps to promptly identify children who are at risk of malnutrition.

To evaluate the prevalence of hospital malnutrition and its risk scores in each child admitted to Department of Child Health Dr. M. Djamil Hospital, Padang.

Methods:

A prospective cohort study was conducted in children who were hospitalized in Department of Child Health Dr. M. Djamil Hospital. We performed anthropometric measurement and nutritional status evaluation, determined nutritional screening, and practiced pediatric nutrition care to all children. We assessed the prevalence of hospital malnutrition and its relationship with several factors.

Results:

One hundred and twenty four children were hospitalized between November 2013 and January 2014 at our pediatric hospital. Baseline characteristic of 68 children (54.8%) were male, 57 children (46.0%) were malnourished and their median age was 36 months (range 1- 168 months). Median length of stay was 7 days (range 1-47 days); 52.3% were hospitalized for ≥ 7 days. According to the modified screening tool for malnutrition in pediatrics (STRONG-kids), 24.2% children were at low risk, 58.9% at moderate risk and 16.9% at high risk. Infectious disease is the most common (47.6%) cause of hospitalization. Prevalence of hospital malnutrition was 30.5%. Age and multiple diagnoses have a significant relationship with the prevalence of hospital malnutrition.

Conclusions:

The prevalence of hospital malnutrition in children at Dr. M. Djamil hospital Padang was high, and more than half children who were at high risk for malnutrition suffered hospital malnutrition.

EP070 / #300

E-Poster Topic: *AS03 Childhood & Adolescence*

COOKIES HIGH IN FOLIC ACID AND IRON BASED ON PORANG, MORINGA LEAVES AND TEMPEH NUTS AS FUNCTIONAL FOOD FOR ADOLESCENTS WITH ANEMIA

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Background and Aims:

This study aims to process porang flour, moringa leaves, and tempeh into cookies that are high in folic acid and iron so that it has the potential as a functional food for adolescent anemia.

Methods:

All materials are created into flour with freeze-drying method. There are two formulations of sample variations according to the comparison of porang flour:moringa leaves:black-eyed pea tempeh sequentially in F1 (1:2:2) and F2 (1:2,5:2,5). 250 mL of water is added to the mixture, and the dough is mixed using a mixer with 100 rpm speed. The dough is preheated using an oven with a temperature of 130°C for 10 minutes. Finished sample products are tested for folate and iron levels using HPLC-UV Mass with a wavelength of 280nm.

Results:

In F1, the amount of iron was 25mg/100g, and folic acid amount 303mcg/100g. Iron in F2 amounts to 23mg/100g and folic acid amounts to 298mcg/100g. In both samples, the total water content was 2.05±0.45% and this corresponds to the Indonesian National Standard SNI 01-2973-1992. The obtained iron levels from both samples (F1 and F2) are in the range of 23-25mg/100g, which is in line with the nutritional adequacy for adolescents (8-18mg of iron per day according to AKG Indonesia) and folic acid levels that are close to AKG Indonesia (400mcg/day).

Conclusions:

Consumption of 100mg/day of cookies with formulations based on this study has the potential to meet the needs of iron and folic acid in adolescents based on AKG Indonesia.

EP071 / #302

E-Poster Topic: *AS03 Childhood & Adolescence*

JAM HIGH IN ANTIOXIDANTS FROM THE COMBINATION OF LACTOBACILLUS REUTERI WITH MANGO JUICE AS A FUNCTIONAL FOOD CANDIDATE FOR CHILDREN WITH FUNCTIONAL DIGESTIVE PROBLEMS

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Background and Aims:

This study aims to process mango juice with *Lactobacillus reuteri* into functional jams as well as determining the level of antioxidant activity in the jam product.

Methods:

There are three variations of mango flesh, V1 (1000 gram), V2 (750 gram), and V3 (500 gram). The three samples of mango flesh are then blended at medium speed for 20 minutes. Each sample variation is inoculated with *Lactobacillus reuteri* DSM17938 amounting to 108 CFU for 7 days in anaerobic conditions with temperatures 20-25°C. A jam product, antioxidant activity is tested with the 2,2-diphenyl-1-picrylhydrazyl (DPPH) method, while moisture content and ash content are measured according to the AOAC with triplo.

Results:

The amount of jam in each variation of the sample was obtained (V1:V2:V3 = 1:0.7:0.48). In V1, antioxidant activity was 45.06±0.05%, ash content was 0.96±0.10%, and water content was 34.05±0.08%. V2, antioxidant activity was 34.84±0.50%, ash content was 0.78±0.05% and water content was 31.50±0.80%. V3, antioxidant activity was 27.97±0.02%, ash content was 0.79±0.20% and water content was 27.33±0.04%. There was a significant difference (p<0.05) between the variation of each sample and the antioxidant activity produced based on the One-Way ANOVA test. In V1, V2, and V3, the obtained ash content and moisture content correspond to The Indonesian National Standard (SNI-01-3746-2008).

Conclusions:

The three sample variations correspond to SNI-01-3746-2008, with the highest antioxidant levels in V1. The combination of *L. reuteri* with mango juice can be processed into a high-antioxidant jam that has the potential as a functional food for children with digestive problems and also as an anti-inflammatory food.

EP072 / #304

E-Poster Topic: *AS03 Childhood & Adolescence*

**THE RELATIONSHIP BETWEEN BODY IMAGE PERCEPTION AND PHYSICAL ACTIVITY OF
HIGHSCHOOL STUDENTS IN PALEMBANG CITY**

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Background and Aims:

Perception of body image is a person's thoughts, opinions, feelings, and responses to the weight, size and shape of his body. Based on theory, perception of body image has a relationship with physical activity. This study aims to identify the relationship between body image perception and physical activity of high school students in Palembang city.

Methods:

This study used an observational analytic study with a cross-sectional approach and did with simple random sampling. The population of this study were students of SMA Negeri 3 Palembang. The data were collected using a questionnaire on body image perception (BSQ) and physical activity (IPAQ). The data obtained were analyzed using the chi square test.

Results:

There were 103 subject with the mean age was 197.63 ± 9.5 month and female subject of 64,1%, it was found that most of subjects had negative body image perception (75.57%) and majority of subject had moderate physical activity (39.8%). The statistical analysis showed that the relationship between body image perception and physical activity was not significant ($p=0.142$) in this study.

Conclusions:

There is no significant relationship between the perception of body image and physical activity of high school students in Palembang City.

EP073 / #306

E-Poster Topic: AS03 Childhood & Adolescence

STAK CHIPS MADE FROM TEMPEH AND MANGO AS A FUNCTIONAL STACK HIGH IN DIETARY FIBER FOR OBESE CHILDREN

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Background and Aims:

High-fiber food has become a trend as one of the foods that can prevent obesity. Therefore, this study utilized the combination of soybean-based tempeh with mango fruit into healthy snack chips high in dietary fiber for snacks for children at risk of obesity.

Methods:

Tempeh made from soybeans and mango is made first using the freeze-drying method. Then, a variety of formulations, namely S1, S2, and S3 are created based on the comparison of tempeh flour and mango flour in each of them sequentially (1:0.5; 1:0.25; 1:0.75). All samples were mixed using a 100rpm mixer for 15minutes with the addition of 100mL of water. The dough is then drained on the mold using an oven with a temperature of 85°C for 25minutes. The finished sample was then tested for food fiber, ash content, and moisture content using the AOAC method.

Results:

Total food fiber obtained are 17.07±0.80% (V1), 12.38±0.05% (V2), and 21.74±0.02% (V3). The total ash content and moisture content of the three sample variations were 0.92±0.06% and 1.39±0.80%. There is a meaningful difference (p<0.05) between the variation of each sample and the total dietary fiber produced. Ash content and moisture content indicate that this snack chips product corresponds to Indonesia National Standards for dry food products (01-6630-2002).

Conclusions:

The combination of soybean tempeh and mango fruit can be processed into snack chips that are high in dietary fiber, and has the potential to be a functional food anti-obesity, by looking at the benefits of dietary fiber that has been shown by many clinical studies.

EP074 / #31

E-Poster Topic: *AS03 Childhood & Adolescence*

ASSESSMENT OF THE NUTRITIONAL STATUS OF PRIMARY SCHOOL CHILDREN IN SHANGLA

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Background and Aims:

Aim is to address the nutritional status of poor under developed neglected districts of Pakistan and to emphasis on need to improve health related issues of children in these areas.

Methods:

anthropometric measurements of all the enrolled children from KG class to class 5 were taken and recorded with help of necessary equipment (weight machine, height meter, measuring tapes). BMI was calculated and the subjects were categorized into four categories (underweight, healthy, overweight and obese) after plotting their BMI value on BMI for age percentiles charts. The monthly income and parental education level was also recorded. All the data were recorded on structured Proforma and was analyzed with help of statistical package for social sciences (SPSS)20

Results:

There were total 310 children who were part of the study in subject school. The age range was from 4 years to 14 years, mean age was 8.72 (SD + 2.64). There were 246 male students and 64 female students in the school. There were 174 children (56.1%) who were underweight. 121(39%) were healthy, 13 (4.1%) were overweight and 2 cases (0.6%) obese. The study shows strong association of higher income and better education with healthy BMI status of children, $p=0.013$ and $p=0.025$ respectively

Conclusions:

Nutritional status of primary school children is poor in Shangla. Therefore it is evident that malnutrition is an important public health problem among school children. There is a great need for policy makers to address this issue through food intervention programmes and enhancing awareness of masses to improve health of children.

EP075 / #314

E-Poster Topic: *AS03 Childhood & Adolescence*

THE RELATIONSHIP BETWEEN APPLICATION OF BASIC FEEDING RULES AND GROWTH FALTERING IN CHILDREN AGED 6-24 MONTHS IN PALEMBANG, INDONESIA

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Background and Aims:

Introduction. Majority of growth faltering cases in children are caused by inappropriate feeding practice. Therefore, basic feeding rules must be applied in order to solve this problem. The study aims to analyze the relationship between application of basic feeding rules and growth faltering in children aged 6-24 months.

Methods:

Methodology. Cross-sectional study was conducted in working area of Kalidoni Health Center from September until October 2019. Data were obtained through proportionate stratified random sampling by weighing the children. Previous data of body weight were taken from interview with the mother and also from children monitoring book.

Results:

Result. Subjects were 108 children with a median age of 14 months, the majority were male. Growth faltering found in 21,3% subjects with ranged of age 6-8 months. The proportion of good was similar to the bad application of basic feeding rules (50,3% vs 49,1%). The application of basic feeding rules ($P = 0,000$; PR 7,125) and the level of family welfare ($P = 0.022$; PR 3,325) showed significant relationship with growth faltering, while the level of maternal education ($P = 0.172$; PR 2.334) was not significant. The most important factor that related to growth faltering was the application of basic feeding rules ($p = 0.002$; PR 6.325).

Conclusions:

The application of basic feeding rules showed significant relationship growth faltering in children aged 6-24 months.

EP076 / #319

E-Poster Topic: *AS03 Childhood & Adolescence*

ADOLESCENT UNDERNUTRITION IN SOUTH ASIA: A SCOPING REVIEW

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Background and Aims:

Undernutrition is a growing public health challenge affecting growth and development during adolescence in many low- and middle-income countries. This scoping review maps the evidence on adolescent undernutrition (stunting, thinness and micronutrient deficiencies) in South Asia and highlights gaps in knowledge.

Methods:

Using Arksey and O'Malley's framework and the Joanna Briggs Institute Reviewers' Manual, the search included electronic bibliographic databases (Medline (OVID), Embase, Cochrane Library, Web of Science, CINAHL, PsycInfo, and Scopus) as well as various grey literature sources published up to March 2019.

Results:

In total, 131 publications met the inclusion criteria of this review. All the included evidence used quantitative data and 115 publications used a cross-sectional design. Nearly 70% (n=86) of the included publications were conducted in India. Prevalence of undernutrition was reported based on different growth references and cut-offs. Evidence is divided into publications that included an intervention component (n=12) and publications that did not include an intervention component (n=116), and presented in a narrative synthesis.

Conclusions:

This scoping review provides a wide range of publications on adolescent undernutrition in South Asia and identifies future research priorities in the field.

EP077 / #328

E-Poster Topic: *AS03 Childhood & Adolescence*

DIETARY QUALITY INTAKE AMONG CHILDREN 24-36 MONTHS DURING COVID 19 PANDEMI AND ITS RELATION TO MOTHERS EDUCATION AND FAMILY INCOME

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Background and Aims:

During this pandemic Era Dietary quality, especially for under five children, is concerned by many. Under five Children are at their golden period for growth and development. This study aim to see the quality of child intake especially for key nutrients for child growth and development, nutrients being studies are Energy, Protein, Lipid, Calcium, Phosphor, Magnesium, Fe, Zn, Vitamin A,D,C, E, folic acid, B6 and B 12

Methods:

Dietary intake were taken using FFQ semi-Quantitative. Subjects were 87 healthy children 24 -36 months, We also took data on mothers Education and family income. Nutrients intake were compare with the Indonesian Recommended Dietary Adequacy for the same age group.

Results:

We found that more than 70% of key nutrient are consume adequately. Further analysis using chi square, shows that there were significant relation between mothers education with child intake of Lipid, Phosphor, Fe, Zn, Vitamin B6 and Vitamin C. As the sources of these nutrient are animal protein and fruits. These finding shows that mother education has a significant relation with type of food. On the analysis of family income, we found that there were significant relation with child intake on Energy , Carbohydrate, Phosphor, Zn, and C. These finding shows that family income is essential not only on the amount, but also the quality of the diet.

Conclusions:

Pandemic has impacted on dietary quality intake for children around the world, with the decrease of family income, but the higher mother education significantly impacted on the better dietary quality of children.

EP078 / #329

E-Poster Topic: *AS03 Childhood & Adolescence*

VALIDITY AND RELIABILITY OF THE MALAY VERSION OF THE ORAL SENSORY PROCESSING QUESTIONNAIRE FOR CHILDREN WITH AUTISM SPECTRUM DISORDER

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Background and Aims:

Sensory sensitivity to food texture, smell, and taste may influence selective eating and food rejection episode in children with Autism Spectrum Disorder (ASD). The oral Sensory Processing section is a part of the Child Sensory Profile-2 to identify taste/smell difficulties in children with autism. Its applicability for use with Malaysian children with ASD aged 3-14 years is unknown. This study aimed to translate, establish the content validity and internal consistency of the Malay version of the ten items in the Oral Sensory Processing (OSP) section.

Methods:

This study involved three phases: (1) forward and backward translations for linguistic suitability; (2) establishment of face validity and content validity reviewed by eight experienced occupational therapists from government and private sectors; and (3) establishment of internal consistency through pilot testing from the target population to determine the reliability of the OSP (N=15).

Results:

The content validity of an average scale (S-CVI/Ave) for four elements comprised of relevance, clarity, simplicity, and non-ambiguous exceeded the minimum acceptable criteria, ≥ 0.80 . Cronbach's alpha for the internal consistency was 0.863, respectively.

Conclusions:

The OSP is a valid and reliable questionnaire for use with the Malay speaking caregivers of children with autism aged 3-14 years. This scale provides healthcare professionals with an accurate tool to evaluate for atypical oral sensory processing.

EP079 / #337

E-Poster Topic: AS03 Childhood & Adolescence

THE ROLE OF MALT-SYSTEM IN COMBINED PATHOLOGY OF THE DIGESTIVE AND URINARY SYSTEM IN CHILDREN

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Background and Aims:

MALT (mucosal-associated lymphoid tissue) is a multilevel system and in combination with the microbiota forms an integrated system of the body. Objective: to determine the role of mucosal immunity for prevention of the urinary tract infections (UTI) recurrence in children with irritable bowel syndrome (IBS).

Methods:

The study involved 42 children (6–15 years old) with IBS. The rate of UTI recurrences three and more times a year. A drug based on purified lysates from six inactivated bacterial strains, which were typical pathogens of UTI, was prescribed to correct mucosal immunity.

Results:

The cases of IBS with constipation prevailed in examined patients — (78.6±6.3)%. Microbiological examination of feces revealed changes in the intestinal biocenosis in (81.0±6.1)% children, namely: reduction of Bifidobacteria — (47.6±7.7)%, Lactobacilli — (42.9±7.6)%, deficiency of normal Escherichia coli — (21.4±6.3)%. Representatives of opportunistic pathogens were isolated in (73.8±6.8)% children: St. aureus — (42.9±7.6)%, Candida albicans — (19.0±6.1)%, Klebsiella pneumoniae — (14.3±5.4)%, Enterobacter cloacae — (11.9±5.0) %, Pseudomonas aeruginosa — (7.1±4.0)%. Analysis of uropathogens spectrum revealed Escherichia coli, Enterococcus spp., Proteus. Evaluation of the mucosal immunity correction showed a decrease of UTI relapses (the average recurrence rate before correction was 2.9 (95% CI 2.7-3.1), after - 0.6 (95% CI 0.4-0, 8)), as well as a decrease in the manifestations of urinary syndrome.

Conclusions:

So, the revealed significant violations of the intestinal biocenosis in children with IBS along with UTI confirm the unity of the MALT– system, which allows to correct the existing immunological changes with drugs of microbial origin.

EP080 / #344

E-Poster Topic: *AS03 Childhood & Adolescence*

ADHERENCE TO THE MEDITERRANEAN DIET IN PORTUGUESE ADOLESCENTS OF THE 3RD CYCLE OF BASIC EDUCATION

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Background and Aims:

The Mediterranean Diet is associated with an improvement in health status in general, greater longevity and improvement in cognitive ability. The aim of the present study was to assess adherence to the Mediterranean Diet in a sample of Portuguese students in the 3rd cycle of basic education.

Methods:

This is a cross-sectional study, and the sample consisted of 18 adolescents aged between 13 and 15 years and to assess adherence to the Mediterranean Diet, the KIDMED questionnaire, composed of 16 questions was used, regarding the frequency of food consumption. For the statistical analysis of the data, the SPSS® software was used.

Results:

The sample consisted predominantly of boys (94.4%), and had an average age of 13.8 ± 0.7 years. Regarding adherence to the Mediterranean Diet, it was observed that the majority of adolescents had a high adherence to this diet (55.60%), with 8th grade students having the highest adherence (87.5%; $p < 0.05$). Regarding food consumption, it was also in the 8th grade students that had a higher consumption of fruit, vegetables and legumes was found ($p < 0.05$).

Conclusions:

In this study, a high adherence to the Mediterranean Diet was found among adolescents, however, it is necessary to continue promoting healthy eating in this age group to enhance healthy growth and development for life.

EP081 / #41

E-Poster Topic: *AS03 Childhood & Adolescence*

DIETARY DETERMINANTS OF ANEMIA AMONG CHILDREN 6–36 MONTHS DURING COVID19 PANDEMIC: A CROSS-SECTIONAL STUDY IN JAKARTA - INDONESIA

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Background and Aims:

The ongoing global pandemic of covid19 is affecting dietary diversity, especially the consumption of iron-rich foods. This study aims to explore dietary determinants factor of anemia status among children age 6–36 months living in urban-poor area of Jakarta.

Methods:

A cross sectional study was done in the only permitted area in Kampung Melayu sub-district of East Jakarta-Indonesia. Data collection could be done during two weeks in September–October 2020 with caution for applying covid19 health safety procedure. Structured questionnaire for 24-hour recall and semi-quantitative FFQ were used to collect dietary intake data, while venous blood withdrawal was taken to get hemoglobin data. Bivariate chi-square and multiple logistic regression tests were executed to explore determinants factor of child anemia.

Results:

This study recruited 180 subjects who completed all data collection. The average of hemoglobin value was 11.4 ± 1.7 mg/dL with prevalence of anemia was 41.7%. Child having no cow's milk formula consumption, and the inadequacy intake of energy, fats, protein, calcium, vitamin D, iron, zinc, vitamin A, vitamin C, vitamin B6, folate and vitamin B12 were significantly associated to higher risk of anemia. But, only no cow's milk formula consumption, fats and zinc intake were revealed as determinant factors of child anemia.

Conclusions:

In conclusion, this study shows severity of anemia prevalence among children 6–36 months in which significantly associated with their dietary intake, namely cow's milk formula consumption, fats and zinc intake.

EP082 / #428

E-Poster Topic: AS03 Childhood & Adolescence

THE GROWTH ASSESSMENT IN CHILDREN WITH SPASTIC FORMS OF CEREBRAL PALSY

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Background and Aims:

Children with spastic cerebral palsy (CP) are at risk for undernutrition. The aim of the study was to assess and compare anthropometric data in children with CP, depending on the Gross Motor Function Classification System (GMFCS) level.

Methods:

72 children (54% boys) with spastic CP were included into prospective cohort study. Patients were grouped based on their GMFCS level: group 1 - GMFCS I-III, group 2 - GMFCS IV-V. Anthropometric measurements (weight and height/knee height) were performed on admission. A survey on the EDACS scale has been conducted.

Results:

Group 1 included 36 (50%) patients with median age 5.4 years, group 2 - 36 (50%) with median age 7.6 years. The prevalence of oromotor dysfunction and dysphagia was significantly higher in group 2 than in group 1 (48% vs 5%, $p < 0.001$), 3 (4%) children in group 2 were fed through a gastrostomy tube (GMFCS V). Children of groups 1 and 2 differed significantly in body weight and height: mean WFA Z-score 1 - 1.13, WFA Z-score 2 -2.13 ($p = 0.03$), HFA Z-score 1 -0.62, HFA Z-score 2 -1.71 ($p = 0.003$), WFH Z-score 1 -1.14, WFH Z-score 2 -1.83 ($p = 0.07$). The prevalence of wasting in group 1 was 11%, in group 2 - 24% ($p = 0.002$), stunting - 4% and 21%, respectively ($p < 0.001$).

Conclusions:

CP children with GMFCS IV-V levels have greater risk of undernutrition developing. These children require regular monitoring of weight and height and timely adequate nutritional intervention.

EP083 / #430

E-Poster Topic: *AS03 Childhood & Adolescence*

UNDERNUTRITION IN HOSPITALIZED CHILDREN: ONE-CENTER STUDY

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Background and Aims:

The undernutrition in children with underlying disease is an independent risk factor for increasing the complications incidence, prolonged treatment. The hospitalization may negatively affect the nutritional status of children. Aim. To assess the nutritional status in children admitted to the tertial hospital and identify the prevalence of undernutrition.

Methods:

In open longitudinal prospective study 419 children (50.4% boys) aged from 1 month to 17 y 11 months (mean age 8.7 years) were included. In the first 24 hours after admission to the National Medical Research Center of Children's Health height and weight were measured in all patients. BMI/age and height/age <-2 SDS were used as acute and chronic undernutrition criterion respectively.

Results:

93.6% of children were hospitalized with chronic disease; 74.9% to general paediatric departments, 25.1% for surgery reasons. Most of the children were 2-10 years old (51.8%), > 10 years old - 38.4%. The length of hospital stay ranged from 2 to 100 days. Undernutrition was observed in 16.5% of children: acute undernutrition in 9.1% (5.5% acute moderate, 3.5% acute severe), chronic undernutrition in 7.4%. The majority of children with undernutrition (98.2%) had chronic disease. The highest percentage of undernutrition was observed in children with nephrological, gastroenterological and cardiological diseases (37.5%, 37.1% and 35.7%, respectively).

Conclusions:

Undernutrition has a high prevalence in children with chronic diseases, that requires nutritional screening and nutritional status assessment in admission for hospital in every patient. Children with acute moderate and severe undernutrition require individual nutritional support with follow-up to prevent the progression of undernutrition.

EP084 / #440

E-Poster Topic: *AS03 Childhood & Adolescence*

A STORYBOOK AS A TOOL TO PROMOTE VEGETABLE CONSUMPTION IN PRESCHOOL CHILDREN – A QUALITATIVE STUDY

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Background and Aims:

Vegetable consumption at preschool age is lower than the recommendations for this age group, and it is necessary to find attractive strategies to promote their consumption. Story Reading is an activity of great importance for the transmission of knowledge, including those related to food. The purpose of this study is to verify the perspective of the different members of the Veggies4myHeart project on the potential of a child storybook to promote the vegetable consumption in preschool age.

Methods:

This is a qualitative study, using thematic content analysis. The answers were analyzed using the WebQDA qualitative analysis software. The sample consisted of 26 participants who answered an open-ended online questionnaire.

Results:

The thematic content analysis resulted in a SWOT analysis. The strengths relates to the message of the story because it was clear and easy to understand. The weaknesses most pointed out by the participants relate to the illustration and the restriction of the story to the five foods being explored in the project. The opportunities most mentioned by the participants are related to the possibility of linking this storybook with other educational resources. Storybook threats most frequently mentioned relate to the fact to the possible reduction of reading habits by families.

Conclusions:

The members of the Veggies4myHeart project highlight more positive aspects related to the potential of the storybook to promote vegetable consumption in children than negative aspects. Some negative aspects pointed out by participants in this study should be considered in future interventions.

EP085 / #442

E-Poster Topic: *AS03 Childhood & Adolescence*

CLINICAL PRACTICE GUIDE FOR THE EVALUATION OF GROWTH, DEVELOPMENT AND NUTRITIONAL STATUS AT PRIMARY AND SECONDARY HEALTH LEVELS: THE USE OF FLOW-CHARTS IN DECISION MAKING

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Background and Aims:

Growth, development and nutritional status in children and adolescents are indicators of health at individual and collective levels. Adequate and practical tools, to be used at primary and secondary health levels (PHL, SHL) in diagnosis and follow-up, are needed. Aim: To use the Clinical Practice Guide (CPG) for assessment, diagnosis, follow-up as well as for training health personnel and finally for decision making.

Methods:

The CPG focuses on the management and interpretation of graphics and on the integration of anthropometric, clinical, biochemical and dietary data necessary for diagnosis. Flow charts for use in PHL and SHL; initial assessment and follow-up, as well as variables, references, cut-off points and decisions are specified.

Results:

The usefulness of the CPG is presented with two clinical cases, Case 1: Girl 3 years-old was evaluated in her preschool center, Height <P3; Weight for height and BMI: low, deficient food intake, Diagnosis: Short Stature + Undernutrition. Referred at SHL. Case 2: Boy 10 years-old was evaluated by a pediatrician at the SHL for "overweight and rapid increase in height" Assessment in the first evaluation: auxological, nutritional indicators, predicted height and its relation to target height; in successive evaluations: height and weight velocities, plus clinical, dietary assessments and laboratory tests. Causes of primary/secondary growth excess were ruled out. Diagnosis: Central obesity plus constitutional growth advancement

Conclusions:

CPG using appropriate flow-charts is efficient for an adequate assessment of growth, development and nutritional status, and recommended as a practical tool to be used at PHL and SHL

EP086 / #46

E-Poster Topic: *AS03 Childhood & Adolescence*

THE COST OF DIETS ACCORDING TO DIET QUALITY AND SOCIODEMOGRAPHIC CHARACTERISTICS IN CHILDREN AND ADOLESCENTS IN BELGIUM.

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Background and Aims:

Diet quality has been positively associated with its cost in adults but research is still needed in younger. Our objectives were to estimate cost variations according to diet quality and sociodemographic characteristics in children.

Methods:

Data from children (n=1,596; 5-17 years) included in the 2014-2015 Belgian National Food Consumption Survey were used. Dietary assessment was based on two 24-hour dietary recalls and a food frequency questionnaire. The "Kidmed index" and dietary patterns (DP) identified through principal component analysis were used to assess the diet quality. Daily diet cost was estimated after linking the consumed foods with the 2014 GfK ConsumerScan panel food prices. Associations were estimated using linear regressions.

Results:

The mean diet cost was 4.68€/day (SEM: 0.05). Adjusted for covariates and energy intake, mean diet cost was 10.7% higher in the highest Kidmed adherence (vs. the lowest) and 6.2% higher in the tercile T3 (vs. T1) of the "Healthy" DP score. It was 5.1% lower in the T3 (vs. T1) of the "Junk food" DP score. For each one-point score increase, the cost increased by 0.07€ for the Kidmed and by 0.12€ for the "Healthy" DP, and decreased by 0.08€ for the "Junk food" DP. Diet cost was higher in 12-17-year-old (vs. 5-11 years) and in medium and high household education levels (vs. the lowest).

Conclusions:

Better diet quality is associated with a higher diet cost in children in Belgium. These findings help better understand social inequalities in diet and may support the implementation of public health policies.

LIFESTYLE SCREENING TOOLS FOR CHILDREN IN THE COMMUNITY SETTING: A SYSTEMATIC REVIEW

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Background and Aims:

Decent screening of children's lifestyle, including nutrition, may prevent lifestyle-related conditions in childhood and later in life. Screening tools can assess a wide variety of lifestyle determinants, resulting in different (risk) scores and prospects of action. This systematic review aimed to summarise the design, psychometric properties and implementation of lifestyle screening tools for children in the community setting.

Methods:

We searched the electronic databases of Embase, Medline (PubMed) and CINAHL to identify articles published between 2004 and July 2020 addressing lifestyle screening tools for children aged 0-18 years in the community setting. Independent screening and selection by two reviewers was followed by data-extraction and qualitative analysis of findings.

Results:

We identified 40 unique lifestyle screening tools, with the majority assessing dietary and/or lifestyle behaviour and habits related to overweight and obesity. Domains mostly covered were nutrition, physical activity and sedentary behaviour/screen time. Tool validation was limited, and deliberate implementation features, such as the availability of clear prospects of actions following tool outcomes, were lacking.

Conclusions:

Despite the multitude of existing lifestyle screening tools for children in the community setting, there is a need for a validated easy-to-administer tool that enables risk classification and offers specific prospects of action to prevent children from adverse health outcomes.

EP088 / #62

E-Poster Topic: *AS03 Childhood & Adolescence*

VITAMIN D DEFICIENCY AND GLYCEMIC STATUS IN CHILDREN AND ADOLESCENTS WITH TYPE 1 DIABETES

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Background and Aims:

Numerous studies conducted in recent years have found specific receptors for vitamin D including pancreatic β cells and immune cells, thus explaining that Vitamin D is associated with blood glucose metabolism and insulin resistance. The aim of this paper is to verify the link between hypovitaminosis D and type 1 diabetes.

Methods:

We conducted a retrospective statistical study on 128 patients diagnosed with Type 1 Diabetes for a period of 5 years (2015-2020) in Pediatric Department of Constanta Clinical County.

Results:

Type 1 diabetes had an increased incidence in patients aged 3-6 years (82%). Most of the people participating in the study come from urban areas, with a percentage of 57%. At the onset of diabetes 64% had a value of Vitamin D $<20\text{ng / mL}$, 32%, between 21-29 ng / mL and only 4% had an optimal level of vitamin D. A high prevalence of Vitamin D deficiency was demonstrated in patients who did not benefit from rickets prophylaxis - 71%, which suggests involvement in the pathogenesis of type 1 diabetes. Patients with a high glycated hemoglobin value $> 7.5\%$ had a low Vitamin D level in 86% cases. 75% of patients had low Peptide C values, indicating a low degree of insulin production by pancreatic β cells.

Conclusions:

The importance of vitamin D deficiency in children and adolescents with Type 1 Diabetes is a current research topic given the severity and increased incidence of this disease.

E-Poster Topic: *AS03 Childhood & Adolescence*

SMARTFEEDING4KIDS, A NEW ONLINE PARENTAL SELF-GUIDED PROGRAM TO PROMOTE CHILDREN'S HEALTHY EATING HABITS AND POSITIVE FEEDING PRACTICES: DEVELOPMENT AND INICIAL FINDINGS OF THE PILOT STUDY

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Background and Aims:

The current young children's dietary patterns are worrisome. Although programs that actively involve parents in modifying parenting practices are promising, the processes of change and the effectiveness of the methodologies used have been poorly studied. We lack a broader approach regarding the impact of the intervention on different effective feeding practices. Previous studies from our team show that Portuguese parents 1) use both effective and ineffective practices, 2) identify context variables and their own preferences for sugary foods as barriers, and 3) benefit from brief interventions that use behavioral methodologies, although the retention rate is low. This work aims to describe the development of SmartFeeding4Kids, a 7-session online self-guided program to help parents of children from 2 to 6 years old modify their child's eating patterns, reinforcing practices that encourage autonomy and self-regulation intake, and overcoming challenges related to the child's feeding.

Methods:

The intervention is based on theoretical models of self-regulation and habit formation, using behavioral change techniques as self-monitoring, goal setting, feedback, and problem-solving. The program's effectiveness is tested with a three-arm and four-time repeated measures RCT design, with feeding practices and children's intake of vegetables, fruits, and sugar-sweetened foods as primary outcomes. We also assessed adherence and involvement throughout the program.

Results:

The pilot study of the program is ongoing, with 45 participants.

Conclusions:

The results obtained will inform about the parental processes of adherence to programs and behavior change and its, and contribute to developing more accessible, appealing, and useful interventions.

EP090 / #86

E-Poster Topic: *AS03 Childhood & Adolescence*

FEEDING DIFFICULTY AMONG CHINESE YOUNG CHILDREN AGED 1-3 YEARS AND ITS ASSOCIATION WITH HEALTH AND DEVELOPMENT

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Background and Aims:

Early feeding practice has a great influence on children's growth. We aimed to profile the status of feeding difficulty among Chinese young children, and to investigate its association with health and development.

Methods:

This study is a part of the YI study conducted in 10 cities in China. A total of 924 children aged 1-3 years were recruited. Data on sociodemographic factors, feeding behaviors, self-reported diseases and anthropometry parameters were collected. Blood samples were drawn to determine hemoglobin levels. Feeding difficulty was evaluated by the Montreal Children's Hospital Feeding Scale (MCHFS). Ages and Stages Questionnaires-3 (ASQ-3) were used to assess developmental outcomes. Multivariable analyses were performed to explore the potential associations.

Results:

The total score of MCHFS was 35.2 ± 12.9 and the highest scored item was "acting up/making a big fuss during mealtimes". Feeding difficulty occurred more often among children with premastication or picky eating behavior. Children with feeding difficulty had lower intakes of cereals, potatoes, vegetables and fruits, and were more likely to suffer from diarrhea (OR, 2.04; 95%CI: 1.32, 3.11) or constipation (OR, 2.04; 95%CI: 1.27, 3.24), but not anemia. Feeding difficulty was also negatively associated with weight, height, head circumference and mid-upper arm circumference related Z-scores (P all < 0.05). In addition, it was related to poorer ASQ-3 fine motor skills, personal and social skills, and total scores (β , -9.00; 95%CI: -15.11, -2.89).

Conclusions:

Feeding difficulty showed a negative effect on children's health and development, which indicated that effective identification and intervention should be undertaken.

EP091 / #88

E-Poster Topic: *AS03 Childhood & Adolescence*

NEIGHBORHOOD SOCIOECONOMIC STATUS IS ASSOCIATED WITH CHILD DIET QUALITY AT 2 YEARS OF AGE. THE STEPS STUDY.

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Background and Aims:

Research shows that socioeconomic characteristics of neighborhoods influence the dietary quality. High neighborhood SES is linked with better adherence to dietary recommendations in adults. However, the relationship between neighborhood SES and children's dietary quality has been poorly studied. The aim of this study was to examine diet quality at 2 and 5 years of age in low and high disadvantage neighborhoods.

Methods:

We used data from a prospective Steps to Healthy Development follow-up study from South-West Finland (2 years $n = 459$, 5 years $n = 380$). To calculate child dietary index we used ten dietary items from questionnaire data according to Nordic Nutrition Recommendations. A cumulative z-score for neighborhood disadvantage at child age of 2 and 5 years was calculated based on Statistics Finland 250 m² grid database.

Results:

We found that diet quality at 2 and 5 years of age were strongly correlated ($\rho = 0.50$, $p < 0.0001$) and diet quality was higher at 5 years of age compared with 2 years of age ($p < 0.003$). Further, we found that child diet quality was higher in affluent neighborhoods compared with deprived neighborhoods at 2 years of age (2 years β (95% CL) -0.25 ($-0.48 - -0.03$), $p = 0.03$). Family sociodemographic factors were controlled for in the analysis.

Conclusions:

Our results suggest that socioeconomic living environment is an important factor considering children's dietary quality already in the early age. Thus, this data suggests that dietary quality might constitute one explanatory pathway linking socioeconomic disadvantage to overweight.

EP092 / #138

E-Poster Topic: *AS04 Obesity*

THE IMPACT OF THE COVID-19 PANDEMIC LOCKDOWN ON CHILDREN AND ADOLESCENTS WITH OBESITY

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Background and Aims:

Obesity is a global epidemic with a growing trend, characterized by three fundamental determinants: genetics, behavior and environment. The COVID-19 pandemic has a strong socio-economic and health impact. The interruption of classroom teaching and suspension of most sports practices in many countries since March 2020, forcing children to stay at home attending virtual classes, had implications for both learning and lifestyle. This study aims to evaluate changes in lifestyle during COVID-19 pandemic lockdown and their impact on body mass index (BMI) of children and adolescents with obesity.

Methods:

A questionnaire related to sociodemographic data, eating habits, sleep, physical activity and screen time was applied to a sample of children followed in childhood obesity department of a tertiary hospital. Anthropometric assessment was conducted before and after lockdown.

Results:

A total of 56 participants, 33 (58.9%) male, mean age of 13.7 ± 3.1 years, was included. There was a statistically significant increase in BMI z-score (2.46 vs 2.60) and the increment was greater among males than among females (BMI z-score (2.5 vs 2.7), respectively; $p < 0.001$). No significant differences were reported in eating habits. Participants reported an increment in screen time in 98.2% and a decrease in physical activity time in 78.6%. The majority (57.1%) reported the same duration of sleep, but both bedtime (64.3%) and to wake up (75.0%) was deferred.

Conclusions:

This study revealed an increase in BMI probably related to the increase in sedentary lifestyle, highlighting the importance of promoting healthy lifestyles, regular follow-up and timely inclusion in physical activity programs.

EP093 / #227

E-Poster Topic: *AS04 Obesity*

METABONOMIC STUDY BASED ON LC-MS/MS OF SIMPLE OBESE SCHOOL CHILDREN

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Background and Aims:

To investigate the metabolite profiling and biomarkers and the metabolic mechanism of simple obese children.

Methods:

Obesity group were 30 simple obese children of school-age and control group were 30 non obese healthy children of the same age.

Ultra high-performance liquid chromatography coupled with quadrupole-time-of-flight tandem mass spectrometry (LC-MS/MS) based metabolomics approach was used for analyzing and monitoring the different metabolites in both groups. Principal Component Analysis (PCA) and Orthogonal Projections to Latent Structures- Discriminant Analysis (OPLS-DA) approaches found many significant differences in metabolites between simple obese children and normal weight children. The underlying metabolic pathways were investigated by the Kyoto encyclopedia of gene and genomes (KEGG) and the metabolomics pathway analysis (MepPA) database.

Results:

Body weight, BMI, waist-hip ratio (WHR) and body fat percentage were significantly higher in obese group than in normal group ($P < 0.05$) while age, gender and height had no statistical differences ($p > 0.05$). Under positive ion mode (POS) and negative ion mode (NEG), there were 27 and 13 potential metabolites or biomarkers found in simple obese group based on LC-MS/MS respectively, including upregulated substances as L-Pyroglutamic acid, Rotenone, DI-Dihydrospingosine and down-regulated metabolites such as many amino acids like Propionyl-L-carnitine, Pro-Leu, Phe-Phe, L-Tyrosine, etc. Most of the metabolites were primarily associated with terpenoid-quinone and many amino acid anabolism or pathway.

Conclusions:

Significantly different metabolic profile indicated the metabolic disorders of amino acid, glycometabolism, polyunsaturated fatty acid (PUFA) and cell energy metabolism in simple obese children. This study will be valuable for further exploration of the mechanism and provide a new intervention basis of childhood obesity.

EP094 / #312

E-Poster Topic: AS04 Obesity

SOCIAL JETLAG AND OVERWEIGHT IN ADOLESCENCE

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Background and Aims:

Social jetlag (SJL) is a measure of the discrepancy in sleep timing between weekdays and weekends. In adolescence, SJL occurs due to misalignment of the biological and social clocks. Our aim was to assess the association of SJL with overweight status in adolescence.

Methods:

Adolescents were part of a follow-up study of a cohort enrolled in infancy. Motor activity was recorded for a week with actigraphs (Actiwatch-16/64) worn on the nondominant wrist. Using an automated method (Actiware®), sleep variables required for SJL estimation were measured. We categorized SJL in <1h, 1-2h, 2-3h and >3h. Sex- and age-specific BMI z-scores were calculated and categorized according to the WHO cut-off points (Normal-weight [BMI z-score ≥ -2 to <1] and Overweight [BMI z-score ≥ 1]). Total fat mass was measured with dual-energy X-ray absorptiometry. GLM and logistic regression analyses were used.

Results:

Three hundred and twelve participants were included, 46% were female and the mean age was 16.8 ± 0.3 y. Compared to those with SJL >3h, adolescents with SJL 1-2h and 2-3h showed lower prevalence of Overweight (32% and 27% vs 47%, $p=0.06$), higher BMI z-scores (0.5 and 0.4 vs 0.9, $p=0.02$) and increased fat mass percentage (28% and 28% vs 31%, $p=0.02$). Adolescents with SJL 1-2h (OR=0.5, $p=0.04$) and 2-3h (OR=0.4, $p=0.01$) had lower risk of Overweight than those with SJL >3h.

Conclusions:

Our findings suggest that adolescents with SJL >3h are more likely to be Overweight. These results provide support to recommend SJL assessment within adolescent obesity prevention initiatives.

Support: NIH RO1 HL088530-02

EP095 / #423

E-Poster Topic: AS04 Obesity

CHARACTERISTICS OF BODY COMPOSITION IN ELEMENTARY SCHOOL CHILDREN

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Background and Aims:

At the present stage, it is known that the risks associated with obesity are caused not only by body mass index (BMI) but also by body composition. The aim of the study was to investigate the characteristics of body composition influencing metabolic risks in primary school children.

Methods:

519 children aged 8 to 12 years were examined, including anthropometry (height, weight, BMI, SDS BMI) and body composition analysis by Inbody 770 (Inbody Co.Ltd., Korea). Statistical processing of the results was performed using SPSS Statistics 25.0.

Results:

Fat mass parameters in girls and boys from the obese and overweight groups were comparable to the BMI SDS values. 11 % among girls with normal body weight (n=146) showed increased body fat mass (FM), 32.2% had increased percent body fat (PBF), and 7.5% had visceral obesity (VO). Among all girls examined, 45.9% had decreased muscle mass. Boys with normal body weight (n=147) had elevated FM in 17.7%, elevated PBF in 34.7%, and elevated VO in 2.1% of cases. Among all boys examined, 17.5% had reduced muscle mass. Children irrespective of sex with bodyweight deficiency had no excess fat mass, but all had muscle mass deficiency.

Conclusions:

The results obtained are probably related to the lifestyle habits of modern children, such as low physical activity, unbalanced nutrition. The revealed changes in body composition in children with normal SDS BMI indicate the need for more active diagnostic tactics and the use of additional tools for early detection of these deviations and their correction.

EP096 / #63

E-Poster Topic: *AS04 Obesity*

THE LINK BETWEEN VITAMIN D STATUS AND CHILDHOOD OBESITY - A RETROSPECTIVE STUDY

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Background and Aims:

Obesity is one of the main nutritional disorders in children and adolescents, with an importance increasing in countries with a higher live standard and an increasing pandemic incidence of obesity worldwide, with negative repercussions on the quality of life. The study aims are a retrospective evaluation of vitamin D status and obesity in children and adolescents.

Methods:

We studied 185 patients aged between 6-17 years old, diagnosed with obesity, over a period of 3 years. Clinical data was based on evaluation of anthropometric parameters , as well as on determining the percentage of fat by impedance method- FAT. Biochemical investigations included lipid profile, glucose tolerance test, with HOMA index for determination insulin resistance and vitamin D status.

Results:

Higher incidence of obesity was found in girls(55%), while in boys' incidence was 45%, most of them from urban area (82%).The mean value of FAT (normal value: 15,1-34%) was 39.2%, with a maximum of 48.2%, sustained by the value of waist circumference (mean value 92 cm). Metabolic syndrome, was found in 25% of patients. 75% had at least one cardio-metabolic complication such as: dyslipidemia (41,25%), hypertension (23%), impaired glucose tolerance (38%). 15% had hyperinsulinemia and 23% insulin resistance. Vitamin D was deficiency (<20ng/mL) in 38%, insufficiency (21-29 ng/mL) in 48% and 14% had an optimal level of vitamin D.

Conclusions:

Because vitamin D is essential for normal growth and development, vitamin D deficiency can have adverse long-term health effects. Our study confirms that Vitamin D deficiency is common in children and adolescents with obesity and overweight.

EP097 / #122

E-Poster Topic: *AS05 Other*

BREAST MILK SHARING : KNOWLEDGE AND ACCEPTANCE AMONG MALAYSIAN

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Background and Aims:

WHO recommends all babies to be exclusively breastfed and in the absence of mother's own milk, donor milk is the next best alternatives. The establishment of a human milk bank(HMB) is still being debated in Malaysia leading to informal milk sharing practices. The aim of this study is to determine the knowledge, attitude and perception among Malaysian towards BMS and to explore the acceptance on the establishment of HMB.

Methods:

A cross sectional study with 412 participants were enrolled to answer a validated questionnaire. Data on sociodemographic, knowledge on breastfeeding benefits, general attitude and perception towards BMS and establishment of a HMB were analysed.

Results:

Majority of the mothers were willing to be a donor or a recipient to a known mother. 61% of mothers are agreeable to the establishment of HMB. 95% of the participants believe it's permissible to share breastmilk but this develops a foster motherhood (88.4%) and foster sibling (91.9%). Milk kinship is an issue among majority. 51.5% of the participants believe the recipient should be charged. In univariate analysis, a good score on the knowledge of breastfeeding (p:0.044), milk kinship (p:0.069) and monetary charges (p:0.001) are factors associated with the acceptance to the establishment of a HMB.

Conclusions:

This study found a high prevalence rate of mothers who are willing to participate in BMS and accept the establishment of a HMB. This action can be potentially shaped by educating mothers on the benefits of breastfeeding and addressing the issue of milk kinship to contribute to a culturally and religiously abiding HMB.

EP098 / #142

E-Poster Topic: *AS05 Other*

EFFECTS OF URBAN AGRICULTURE ON FOOD SECURITY

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Background and Aims:

Rising food prices makes it hard for the poor urban dwellers to access food. Urban agriculture is a key element in food security strategies. Poverty and food insecurity in the past have been associated with rural areas but there is a shift currently to urban poverty.

Aims

To establish the extent to which urban agriculture contributes to food security.

To establish the impact of urban agriculture on livelihoods

Methods:

This review study reviewed 20 articles /journals related to urban agriculture and food security

key words were used in looking for articles/journals. The researcher critically analyzed the articles and journals to ensure that how urban agriculture affects food security

Results:

FOOD AND NUTRITION SECURITY

The contribution of urban agriculture to food and nutrition security is probably its main strength.

2.EMPLOYMENT AND INCOME GENERATION

Majority of urban dwellers who practice urban agriculture are employed by the fact of farming and others are employed by others (. Akter, S. and S.A. Basher 2014).

On trends land use was found as a trend

Conclusions:

Urban agriculture is one pillar of agriculture and plays a role in enhancing food security. It plays a role in diet diversification especially on vegetables. Urban agriculture helps the urban poor to enhance their livelihood and to create resilience to withstand the ever increasing food prices. However urban agriculture

has also come with its challenges such as poor perception towards it and health problems associated to growing of vegetables in sewages which is the habitat of many disease causing microorganism.

EP099 / #172

E-Poster Topic: *AS05 Other*

NUTRITION OF MITOCHONDRIA IN THE SYSTEMIC TREATMENT OF AUTISTIC SPECTRUM DISORDERS AND ATTENTION DEFICIT DISORDER, DEVELOPED AGAINST THE BACKGROUND OF METABOLIC DISORDERS

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Background and Aims:

Background and aims: the birth of mitochondrial medicine has confirmed the underestimated role of energy metabolism in interaction of viral, metabolic components. 20 years experience in epidemiological and clinical studies of mitochondrial dysfunction in Ukraine allows us to make the preliminary conclusion about the effective use of information about "the gastrointestinal tract of the cell" in mitochondria.

Methods:

Methods: clinical genetic, biochemical and molecular genetic biomarkers were used. 2676 patients with mitochondrial dysfunctions and mitochondrial diseases were examined. The leading clinical signs were local and total muscle hypotension, gastrointestinal damage, varus or valgus deviation of feet, abdominal viral infection, exercise intolerance, a wide spectrum of neuropsychiatric disorders. Persistent infection signs manifested at different stages of ontogenesis have occurred in 73% (Epstein-Barr virus, cytomegalovirus, herpes virus types 1,2,6,7).

Results:

Results: the clarified diagnosis reflected the nature of hereditary metabolic disorders, viral damage, the degree of mitochondrial dysfunction manifestation. The prescription of active form of thiamine pyrophosphate was determined by its function. B1 is a cofactor for cytosolic transketolase, for PDH of mitochondrial α -KGDH and branched-chain ketoacid dehydrogenase. Recommended products - beans, peas, bread, cereals, pasta, rice, nuts, pork, whole grain seeds. Because of viral infection presence, therapeutic products, medicinal herbs, supplements were prescribed as antiviral factors (Anthony William, 2020).

Conclusions:

Conclusions: the high effect of the carried out treatment can be explained by the systemic normalization of the gastrointestinal tract, a chain of successive positive changes in the immune system, normalization of the function of neurotransmitters and other aspects of brain activity.

EP100 / #174

E-Poster Topic: AS05 Other

THE NUTRITIONAL STATUS AND BODY COMPOSITION IN CHILDREN WITH CYSTIC FIBROSIS (CF)

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Background and Aims:

The survival and quality of patients with CF as well as lung function depends on their nutritional status. The aim was to assess the nutritional status and body composition of CF patients for the purpose of better nutritional and exercise support.

Methods:

In 102 CF children aged 5-18 years nutritional status, NS (BMI for age, BAZ, AnthroPlus 2009) and body composition by the bioimpedance analysis were evaluated, along with the lung function (Forced Expiratory Volume in one second, FEV1) and CF severity under Schwachman-Brasfield score.

Results:

Severe malnutrition (BAZ<-3) had 12.7%, moderate (BAZ -3 - <-2) 10.8%, mild (BAZ - 2 - <-1) 29.5% of patients; normal BAZ had 43.2%; overweight were 3,8%. In "thin" NS children (BAZ <-1) most of children (89%) had the lack of lean body mass; 45% had the lack of fat body mass. In "normal" NS (BAZ + 1) the excess of fat body mass had 10.5%, and lack of lean body mass had more than a half (68.7%). In "overweight" group (BAZ > +1) all had high fat body mass. Direct correlation ($r=0.57$ $p<0.005$) between lean body mass Z-score and lung function (FEV1) and negative correlation between CF severity and fat body mass Z-score ($r= -0.41$ $p<0.05$) were observed.

Conclusions:

Lack of lean body mass observed in most CF patients even with normal BMI emphasize the role of high-protein (not only traditionally recommended high-fat) diet together high physical activity. The increase of lean body mass is especially important for preserving lung function.

EP101 / #224

E-Poster Topic: AS05 Other

STUDY OF MACRO AND MICRONUTRIENTS OF BREAST MILK – PARTICULARITIES OF NORTH-WEST ROMANIAN POPULATION

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Background and Aims:

Objectives and study. The aim of the study was to determine the macro and micronutrients, heavy metals and ions (especially nitrates and nitrites) in the 1-st, 3-rd day of life and in the sixth week of lactation and then correlate with neonatal data.

Methods:

Methods. The samples were collected, then frozen and stored at -20°C until the analysis. The processed samples were analysed by using an atomic absorption spectrometer (Zeenit700 AAS system, Analytik Jena, Germany). For ions analyses, analysed using an Ion Chromatograph system (IC 1500 Dionex, USA). All patients had informed consent signed.

Results:

The proteins from breast milk decrease significantly in the first six weeks.

Mn in the breastmilk was 12,11µg/l in 1-st day for newborn at term versus 0,45 µg/l for the premature (p=0,03). The content of Ca (calcium) in the 3-rd day of lactation was 456,95±64,99 for term infant versus 233,40±110,39 for premature (p=0,02).

The Pb concentration we found to be significantly higher in breast milk of male term neonate (1,24±1,66mcg/l) versus male preterm ones (0,04±0,04mcg/l) (p=0,01).

We find significant correlation of the energetic value of the breast milk with the gestational age (GA) (r=0,39) and the weight (W) of the baby (r=0,43). The content of Ca was correlated with GA and W (p=0,001). Mn had a high correlation with GA (p=0,01).

Conclusions:

Conclusions

The Pb concentration is significantly higher in breast milk of male term neonate vs male preterm.

Mn, Ca content and energetic value of breast milk is correlate with GA and weight.

The proteins decrease significantly in the first six weeks.

EP102 / #232

E-Poster Topic: *AS05 Other*

PERCEPTION AND PRACTICE OF BREASTFEEDING IN PUBLIC IN POLAND.

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Background and Aims:

The aim of the study was to get to know people's opinions and experiences regarding breastfeeding by women in public places in Poland and to determine the need to create places dedicated to breastfeeding in public places and facilities.

Methods:

A one-time 11-question survey aimed at women during lactation or breastfeeding in the past who completed a paper questionnaire or online on the website (www.laktacja.pl). Data from the paper questionnaires were then entered into a common electronic data form.

Results:

The study was conducted from September 1, 2019 to March 31, 2020 in Maternity and Neonatal Departments, primary health care clinics and electronically. 700 questionnaires were analyzed. 90% of the surveyed women expressed the opinion that it should be possible to breastfeed in public. 78% of women have had such an experience. Most often it was their own cars, a room for a mother and child, a hall or just a place available when there was a need to feed the child (e.g. a bench, cafe, toilet). 10% of women faced criticism while breastfeeding in a public place. 8.6% of women have never breastfed the child out of the house. The reason is the lack of proper place and conditions, embarrassment and no sympathy from other people.

Conclusions:

Taking into account the benefits of long-term breastfeeding and the comfort of breastfeeding women, their children and the environment, it is necessary to create dedicated places for breastfeeding in public places.

EP103 / #253

E-Poster Topic: AS05 Other

REVIEW APPS CONTAINING DIETARY ADVICE FOR PREGNANT WOMEN

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Background and Aims:

Gestational malnutrition, characterized by either nutrient deficiencies and/or too high or low gestational weight gain are highly prevalent, which stresses the need for effective dietary intervention. During the past decades pregnant women were mainly informed through one size fits all campaigns and medical professionals. Owing to recent technological innovations smartphone apps can now be added to this list. We aimed to inventory the availability of smartphone-based apps providing dietary advice during gestation, and to rate their quality.

Methods:

The systematic search was performed in the Dutch AppStore and Google Play Store. Apps were included when they were in Dutch or English language, had a rating of 2 or higher and had at least 10 ratings. Apps were searched and selected between 18 and 27 November 2020 for Dutch apps and between 15 and 26 February 2021 for English apps. The quality of the apps is being assessed using the MARS tool, which scores on engagement, functionality, aesthetics and information quality. Furthermore, the ABACUS scale is used to identify the behavior change techniques used. Finally, the provided dietary advice was compared to the Dutch dietary guidelines and accordingly was assessed in terms of accuracy and specificity.

Results:

A total of 85 apps were included of which 15 were in Dutch and 70 in English.

Conclusions:

First results indicate that smartphone-based apps that provide dietary coaching during pregnancy are widely available however only a few with extensive dietary advice. Further assessments and analyses are currently ongoing and will be finished in the near future.

EP104 / #264

E-Poster Topic: AS05 Other

IS INTAKE OF VITAMINS SUFFICIENT FOR LACTATING WOMEN IN LATVIA?

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Background and Aims:

Lactation is the period when a woman's nutritional needs are increased. Studies from other countries (Prat et al., 2014) indicate that women during lactation are not consuming enough vitamins, and it could lead to suboptimal levels of vitamins in human milk. Therefore, the aim of this study was to assess whether intake of vitamins among lactating women in Latvia is sufficient to meet daily nutritional recommendations.

Methods:

72-hour food diaries were collected from 70 lactating women currently residing in Latvia from January till December 2020. To calculate vitamin intakes, the Finnish food composition database Fineli (Release 20, 2019) was used. Vitamins consumption via dietary supplements was also taken into account. Data statistical analysis was conducted using Microsoft Excel (2019).

Results:

Vitamin, unit	Median intake [interquartile range] (minimal–maximal values)
Vitamin A, µg	722.54 [606.16] (35.63–2540.96)
Vitamin D, µg	6.54 [24.80] (0.00–256.67)
Vitamin E, mg	12.71 [8.30] (2.71–49.37)
Vitamin C, mg	97.65 [86.92] (0.58–1046.16)
Vitamin B ₁ , mg	1.37 [0.69] (0.43–10.43)
Vitamin B ₂ , mg	1.49 [0.93] (0.53–5.88)

Vitamin B ₆ , mg	2.20 [1.35] (0.67–22.71)
Vitamin B ₉ , µg	323.87 [188.60] (95.13–1966.42)
Vitamin B ₁₂ , µg	4.38 [4.15] (0.00–23.81)

Conclusions:

Although large variances regarding vitamin intakes were observed among the participants, the median intakes of most vitamins (A, D, C, B₁, B₂, B₉) did not reach daily nutritional recommendations, and it indicates that breastfed infants in Latvia could potentially receive insufficient amounts of vitamins via human milk.

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E-Poster Topic: AS05 Other

NUTRITIONAL AND ENVIRONMENTAL DETERMINANTS OF STUNTING AMONG INDONESIAN CHILDREN, INSIGHTS FROM SOUTHEAST ASIAN NUTRITION SURVEY (SEANUTS)

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Background and Aims:

Although global reduction of stunting is the primary goal in the Global Nutrition Targets for 2025 and a focus for local government, the prevalence of child stunting in Indonesia has remained high (30.8%) indicating the need for better insights. In this analysis, we aimed to compare blood biomarkers, dietary intakes, sanitation and social-economic status between stunted and healthy Indonesian children.

Methods:

Anthropometric, blood, social-economic and dietary intake data from 6953 Indonesian children aged 6 months to 12 years old from South East Asian Nutrition Surveys (2011) were used in this analysis. Food intake was collected using a semi-quantitative food frequency questionnaire (FFQ) and nutrient intake was calculated.

Results:

The average HAZ score was highest (-0.45SD+/-1.25) and the prevalence of stunting lowest up to 1 year of age (11.8%). It increased to 35.9% with HAZ dropping to -1.57(SD+/-1.2) after 1 year. In infants, nutrient intake didn't differ between stunted and healthy children, but breastfeeding was higher in healthy children(OR= 0.133 CI:0.019-0.941). Stunted older children had lower intakes for all macro and micronutrients, as well as dairy and poultry. After correcting nutrient intake for energy differences remained for most micronutrients, protein, protein quality and EAAs. Stunted children were more likely to be anaemic, have inflammation, live in rural areas and have no access to proper waste disposal.

Conclusions:

Stunted children have a lower nutrient intake than healthy children, which can be attributed both to energy intake and diet composition. Poor (protein) quality of the diets, and improper waste disposal, limit the possibility of catch-up growth.

EP106 / #305

E-Poster Topic: AS05 Other

THE EFFECT OF MATERNAL SMARTPHONE USAGE ON THE PRACTICE OF COMPLEMENTARY FEEDING ON INFANTS IN PONTIANAK CITY

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Background and Aims:

The correct practice of complementary feeding by mothers is one of the factors to prevent stunting in Indonesia. The use of smartphone among mothers in Indonesia to find information about complementary feeding practices is becoming a trend in Indonesia.

To determine the effect of maternal smartphone usage on the practice of complementary feeding on infants.

Methods:

A descriptive, cross-sectional study, by interviewing and filling in questionnaires regarding maternal knowledge and practice of complementary feeding for mothers with infants aged 6-12 months.

Results:

There were a total of 110 mothers with aged between 26.9(5) years old, have a smartphone (89.1%) and used it to find information on children's nutrition (82.7%). There was a significant difference in maternal knowledge regarding evidence-based complementary feeding practices for mothers who used smartphone compared to those who did not (p value=0.025). Mothers who used smartphones know the benefits of giving oil and variety of food especially animal protein such as fish, chicken and eggs to baby started at 6 months old, although from this study it was found that the first complementary foods given to babies aged 6 months were mainly from carbohydrate group namely rice, vegetables and fruits. They were also implemented correct feeding rules such as making meal schedules (99%), mealtime not more than 30 minutes (93.9%), and stop eating process when baby has refused (94.9%).

Conclusions:

The use of mobile health technology in developing countries like Indonesia in increasing mother's ability to practice the correct complementary feeding practices could be the main media of choice.

EP107 / #311

E-Poster Topic: AS05 Other

PALMITOLEIC ACIDS SUPPRESS SKELETAL MUSCLE DIFFERENTIATION IN A HYPERGLYCAEMIC ENVIRONMENT

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Background and Aims:

BACKGROUND AND AIMS: The effect of hyperglycaemic intrauterine environment, caused by maternal obesity and diabetes, on skeletal muscle differentiation during foetal development is unclear. Therefore, we conducted a study to elucidate this effect using a myoblast cell model that mimics a hyperglycaemic intrauterine environment. Additionally, we evaluated functional fatty acids for their effect on foetation in a hyperglycaemic intrauterine environment.

Methods:

METHODS: Rat myoblast L6 cells were cultured in Dulbecco's modified Eagle medium containing 5 mM glucose (LG) or 25 mM glucose (HG) for 6 days to investigate the effect of high-glucose medium on skeletal muscle differentiation. This effect was assessed using western blotting and real-time polymerase chain reaction with differentiation marker genes. The effect of functional fatty acids—*cis*-palmitoleic acid (CPA) and *trans*-palmitoleic acid (TPA)—on foetation was also evaluated.

Results:

RESULTS: *pax3* expression was 0.8-fold lower in HG than in LG, whereas that of *MRF4*, *MyHC2a*, and *MyHC2x* was higher. However, HG/CPA and HG/TPA increased *pax3* expression by 1.3- and 1.7-fold, respectively, and decreased that of *MRF4*, *MyHC2a*, and *MyHC2x* compared to HG. Moreover, Akt phosphorylation was 2.5- and 1.2-fold higher in HG and HG/CPA, respectively, than in LG; however, TPA downregulated Akt phosphorylation.

Conclusions:

CONCLUSIONS: We demonstrated that a high glucose level promoted skeletal muscle differentiation, and both CPA and TPA suppressed this differentiation. In future studies, we aim to investigate the mechanism through which palmitoleic acids suppress skeletal muscle differentiation in a hyperglycaemic environment.

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E-Poster Topic: AS05 Other

PREVALENCE OF FOOD ALLERGIES (PROBLEMS) IN CHILDREN'S POPULATION

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Background and Aims: Food allergy in children's population is one of the most important global problems in pediatrics. Food allergens are the most frequent etiological factors for AD. Organism hyper-reactivity to food is known since ancient time and this is still important, being the global problem.

Methods: Research was conducted in stages: first stage included use of the questionnaire for screening, common diagnostic criteria for the nosology subject to study and allergic diseases prevalence research map. Research included 789 children from 6 months to 15 years (468 girls, 321 boys) from Tbilisi, Kutaisi and Batumi regions. Material processing was provided by randomization method, with SPSS v/16.5 software. 5 software.

Results: Retrospective analysis of appealability due to allergic diseases showed growth of prevalence of food allergies; respiratory system problems (AR 12.6% ($p<0.05$), BA 2.4% ($p<0.05$) AD 5.6% ($p<0.05$), food allergy 8.9% ($p<0.05$), number of boys exceeded number of girls ($p<0.05$). Atmosphere contamination ($p<0.05$) greatly contributes as well.

Conclusions: Population study allowed identification allergic diseases risk factors, high frequency of respiratory system infections, medication sensitization, hereditary load, food allergens, gender ($p<0.001$). Difference factor identified by comparison of the research results and statistical data will improve accuracy of diagnosing food allergies ($p<0.01$).

E-Poster Topic: *AS05 Other*

DELIVERING NUTRITION COUNSELING THROUGH COMMUNITY HEALTH VOLUNTEERS IN INHAMBANE, MOZAMBIQUE: AN ASSESSMENT OF CORRECT KNOWLEDGE OF COMMUNITY HEALTH VOLUNTEERS AND BENEFICIARIES OF A NUTRITION PROJECT.

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Background and Aims:

Since 2016, a home-based nutrition counseling project (Southern African Nutrition Initiative) aimed at pregnant and post-partum women is being implemented in Homoine and Funhalouro districts, in the province of Inhambane, Mozambique. The goal of this study was to assess the quality of nutrition counseling provided by community health volunteers (CHVs) to families identified as being at high risk of malnutrition.

Methods:

A cross-sectional observational study using Real Accountability: Data Analysis for Results (RADAR) quality of care tools was conducted in Homoine and Funhalouro districts in the province of Inhambane. From 10th to 19th September 2019 a total of 123 CHVs and 116 beneficiaries were interviewed.

Results:

Over 90%(118/123) of CHVs correctly stated that iron-folic acid tablets that women receive at pre-natal consultations improve fetus health and 93.5% (113/123) stated that a newborn should not receive anything other than breastmilk for the first 6 months of life. More than 50% of CHVs said that a person should wash their hands before feeding a child. A similar proportion of CHVs who are illiterate(26.6%) and literate(37.9%) have correct knowledge about antenatal services, ways to prevent diarrhea, and benefits of family planning ($p>0.05$). Beneficiaries mostly correctly recalled messages on types of services a woman receives at antenatal care visits (92.1%; 35/38), foods that pregnant women should eat (89.5%;34/38) when a person should wash their hands (87.9%;102/116), and family planning methods (85.1%;40/47).

Conclusions:

Literacy is not a limitation for delivering maternal and child nutrition's main messages. Nonetheless, there is a need to reinforce training on nutrition-specific topics.

EP110 / #92

E-Poster Topic: AS05 Other

FACTORS AFFECTING GROWTH FALTERING IN CHILDREN VISITING PEDIATRIC CLINIC OF UNIVERSITAS SEBELAS MARET HOSPITAL

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Background and Aims:

Growth faltering is physical growth insufficiency or inability to maintain desirable growth in a certain period. Malnutrition is a stem stone of growth faltering. This study aims to investigate factors affecting growth faltering in children visiting pediatric clinic of Universitas Sebelas Maret Hospital

Methods:

We performed cross-sectional observational analytical study in pediatric outpatient clinic of Universitas Sebelas Maret hospital, Surakarta, Indonesia between August and October 2020. Using consecutive sampling technique, we obtained 114 children under 5 years of age meeting our inclusion criteria. We used instrument of questionnaire by interviewing the mothers. Weight and height were measured anthropometrically, then plotted on WHO standard height and weight increment table for children between 4-24 m.o. and their nutritional status was determined using WHO Anthro version 3.2.2.

Results:

Multivariate analysis obtained complementary food combinations of > 1 and methods of giving breast milk / expressed milk / formula were significant protective factors against stunting (OR= 0.445; $p= 0.009$ and OR= 0.191; $p= 0.005$, respectively). Giving breast milk to children aged 4-24 m.o. influenced height increment of $< P_5$ (OR=0.057; $p=0.001$). Sources of mother's knowledge on complementary foods and types of complementary foods given to subjects aged 4-24 m.o. affected on weight faltering (weight increment $< P_5$) significantly (OR=0.062; $p=0.014$ and OR= 12.669 ; $p= 0.047$, respectively).

Conclusions:

Methods of giving breast milk and/or formula as well as types of complementary foods affect on height for age indicator. Sources of mother's knowledge and combinations of complementary foods influence on the incidence of weight faltering in children aged 4-24 m.o.